Industrial Finishing

REG. U.S. PAT. OFF.

Devoted to the Finishing of Industrial Products
Published Monthly at Indianapolis, Indiana

Vol. III, No. 6 APRIL 1917 $1.00 a Year

LILLY'S
Better Products

LILLIWOOD LACQUER
CLEAR
NITRO LACQUER PEARL
FLAT
LACQUER ENAMELS
ALL COLORS

Write for Samples and Full Information.

LILLY VARNISH COMPANY
INDIANAPOLIS, IND.
Chicago, 273 North California Ave.

Made by Industrial Finishing Specialists

SERVICE

Submit a sample of your product and we will finish it in whatever color or finish you desire. Our Service Division will finish the article and will report to you every detail of the method and materials used and will aid you in quickly determining production costs in any volume.

This service is maintained by The Zapon Company in the interests of better finishing. Through this service many of the present-day successes of the manufacturing world have been made possible.

We have taken up the finishing problems of many manufacturers after others have failed and by careful attention to every item of manufacture have found the solution.

To make iron appear like fine brass; to make various metals appear like the finest wood; to secure facsimiles of the old masters; and to produce unusual metallic effects in supposedly impossible places. These are some of the wonderful things that have been done with Zapon.

Whatever your product and regardless of what your finishing problem may be, we are prepared to apply the practical experience, chemical knowledge and research work necessary to achieve its solution, most likely with a reduction in production costs.

Put your finishing problems up to us

"The recognized standard since 1884"

THE ZAPON COMPANY—STAMFORD, CONN.—New York
Chicago, Los Angeles, Cleveland, New Haven, San Francisco, Oakland

ZAPON pyroxylin lacquers

ZAPON
Products
(pyroxylin)

LACQUERS & LACQUER ENAMELS for metal, wood, composition, fabric, glass and architectural finishing

THINNERS
SOLUBLE COTTON SOLVENTS
BASE SOLUTIONS
WATERPROOF CEMENTS
AEROPLANE DOPES
AUTOMOBILE FINISHES
LEATHER CLOTH
LEATHER DOPES

ZAPON

Our OIL and LACQUER SHADING STAINS

are being used by leading furniture manufacturers throughout the country to produce beautiful effects on high grade furniture.

Leading designers today realize importance of proper color combinations to harmonize with designs. Ask your designer about Lindeman Wood Finishing Materials.

Try Our Special Lacquer Fillers--

recommended by the largest lacquer manufacturers in the country.

Something New---

Try our new Early American and Amber Brown Mahogany Stains in both water and oil.

Ask for samples of fillers and stains, we want you to try them.

LINDEMAN WOOD-FINISH CO.

MAIN OFFICE AND FACTORY, INDIANAPOLIS, IND.

Warehouses and Branch Offices, Grand Rapids, Mich., and High Point, N. C.

A Dressy Finish for Music Boxes, Portable Phonographs Radio Sets, Sample Cases, Etc.

Hilo Crystallizing Lacquer gives to products an attractive, dressy finish that increases sales.

This finish is durable, it withstands exposure and hard wear. It is waterproof and is not affected by oil, benzine, etc.

Hilo Crystallizing Lacquer lowers production costs because this finish hides minor imperfections in the surface.

Hilo Crystallizing Lacquer is applied like varnish. It may be used over any hard non-porous surface or over any other finish-varnish, japan, colored enamels.

Try Hilo Crystallizing Lacquer on your product. A liberal sample will be sent gratis. Ask for Bulletin No. 8.

HILO VARNISH CORPORATION

1 GERRY ST., BROOKLYN, N.Y.

Boston Chicago HILO Philadelphia Pittsburgh

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Industrial Finishing

An Independent Publication Devoted To The Finishing of Industrial Products

CONTENTS FOR APRIL, 1927

With the Editor 5
Perfect Spraying of All Materials, by R. L. Masterson 7
Furniture Finish Drying Rooms, by O. L. Farris 11
More About Striping, by Fred Mannhardt 16
How to Use Dipping Lacquers, by J. C. Alsee 18
Imitation Fumed Oak Finish, by L. S. Decker 22
What Cheap Lacquer Did, by Joseph Cowan 22
The Finish as a Selling Factor, by E. J. Clary 24
Why the Finish Crazes and Cracks—II, by Chas. Blanford 28
Some Wood Filler Troubles, by J. C. Ketterman 32
The Automobile Repaint Shop, by K. N. Kathju, M. S 41
Second-coat Paints, by E. Perry 48
Brush Lacquers in Color 53
Editorial 54
More Lustrous Finishes.
Furniture Production.
Fire Prevention Work.
Rubbing a Lacquer Finish, by J. H. S 56
An Irishman's Mistake 56
Dip Finishing and Baking Equipment 57
Questions and Answers 58
Gold Leafing Mirrors, by H. V. and I. F 58
Lacquer Thinner; Brushing, by M. P. A. and I. F 58
A Filler That's Unsatisfactory, by F.-T. Co. and I. F 60
Spraying on Large Surfaces, by G. W. C 62
Hand Stirring Old Fashioned—Use a Portable Mixer, by Geo. Whigelt 62
Ordering Finishing Materials, by J. H. S 64
Baked Finishing Section 67
Baked Enameling Suggestions, by Fred Mannhardt 69
Japanning Room Fire Hazard, by Wm. J. Miskella, M. E 72
Spray Booth News 81
Qualifications of an Industrial Salesman, by Joseph Cowan 82
Refinishing with Lacquer Over Varnish, by Albert Welsh 86
Brushing Lacquers Should Be Slower Drying, by Edw. C. H. Rottmann 89
The Cause of Blooming, by Geo. Ladermann 93
Why Lacquer Failed, by Joseph Cowan 97

Copyright, 1927

Published by Practical Publications, Inc., Room 603, 222 E. Ohio St., Indianapolis, Ind. A. T. Gaumer, President; W. H. Rohr, Vice-President and Managing Editor; R. E. Suits, Secretary; E. A. Dosch, Treasurer. Eastern representative, C. A. Larson, 154 Nassau St., New York, N. Y., phone Beekman 3471. Western representative, Howard L. Watrous, 550 Wrigley Bldg., Chicago, Ills., phone Superior 2429. Missouri representative, G. H. Dirhold, 615 Star Bldg., St. Louis, Mo., phone Garfield 4645. Subscription rates, $1.00 per year in U. S. and possessions; $1.50 per year in Canada and $2.00 per year in foreign countries. Advertising rates on application.

DHRLAK-R

THE NEW LACQUER
SPRAY—DIP—BRUSH
Gloss—Eggshell—Satin

ITS FEATURES

- Eliminates shellac first coat.
- One coat over filler builds up equal to two coats of any other lacquer.
- Dries very hard and can be rubbed.
- Sprays on evenly without undue care.
- Can brush several coats without lifting.
- Does not crack nor orange peel.
- Can re-coat within 30 minutes.
- Is dust proof in a very few minutes.

We Will Send Five Gallons on Approval at Drum Price.

DHRLAK

"Gives Your Work a Bright Future"

DENNY, HILBORN & ROSENBACH, Inc.
PHILADELPHIA

318 W. Washington Street
Chicago

15 East 40th Street
New York City

With the Editor

THE MANUFACTURER of industrial finishes or finishing supplies who offers to send a sample of his goods free of charge, to be given a trial, exhibits the highest degree of faith in his product and in the good judgment and fairness of the individual or firm that requests a sample. If he includes the free sample offer in his advertising in INDUSTRIAL FINISHING, it is evidence that he respects the intelligence and sense of fairness of INDUSTRIAL FINISHING'S readers.

The free sample is really more than just a bid for future business. It offers an opportunity to the user of finishes to become better informed on the relative merits of what materials and supplies are available in this age of rapid industrial progress. To try out any finishing material in one's own establishment is the easiest, quickest, cheapest and most satisfactory way to find out whether:

1—it will fill the particular requirements and conditions better than anything else available at the price;

2—its use will effect any saving in manufacturing costs without impairing quality or slowing up production;

3—it is unsuitable or too costly for the class of work and other prevailing conditions.

With competition so keen, this information is vitally important to every user of finishes. Really, for the good of the entire industry, as well as for purely selfish reasons on the part of the finish user, it would be well to make out a report of the results obtained from all such tests. These reports may contain suggestions and information which will enable the manufacturer to further improve his product. After all, it is only through co-operation that we make any progress.

The offer of a free sample and the sending of such sample represents a good intention on the part of the manufacturer; a request for the sample should represent an equally good intention on the part of the user of finishes. Unfortunately some individuals, either through thoughtlessness or willful unfairness, have taken advantage of free sample offers to obtain material for personal use without paying for it. Readers of INDUSTRIAL FINISHING will agree that this is a form of petty cheating.

A careful check-up reveals the fact that individuals who resort to this sort of thing do not mention the firm they are connected with. Their requests are not written on the company's stationery because they lack the management's sanction or approval.

As protection against this practice, a number of manufacturers have established a policy of refusing to honor requests for free samples unless same are written on business stationery. We feel sure that all readers of INDUSTRIAL FINISHING appreciate this situation and will use their influence in discouraging the practice of writing for samples on anything but stationery bearing their firm's letterhead.

W. H. Rohr

Managing Editor

Kindly mention INDUSTRIAL FINISHING when writing advertisers

DeVilbiss
Spray-finishing System
Complete Spraying Equipment

DeVilbiss *Type C* Spray Gun

Small — Handy Invaluable

for (1) stenciling, decorating, high-lighting, blending or shading furniture, lighting fixtures and art objects; (2) coating small parts individually; (3) touch-up work of every description; (4) applying materials on any kind of surface; (5) working to an exceptional degree of fineness and accuracy.

The DeVilbiss Type C Spray Gun, with 6-oz. glass container—or metal if preferred, is one of the handiest tools you can have in the finishing room. . . . The gun fits the hand; the forefinger falls naturally on the trigger; a gentle varying pressure on the trigger produces a spray ranging from the most delicate and finest to the widest used for average coating. . . . Type C Gun is simple in construction, easy to clean, and embodies many of the basic advantageous features of the widely known and used DeVilbiss Type A Spray Gun.

The glass container has a label section sand-blasted on the side on which to write color specifications. Extra containers and a light, convenient tray for holding and carrying them are supplied.

Let us tell you more about the Gun and the complete outfit.

THE DEVILBISS CO. 294 Phillips Ave. TOLEDO, OHIO

New York—Philadelphia—Chicago—Detroit—San Francisco—Cleveland—Indianapolis
St. Louis—Milwaukee—Minneapolis—Windsor, Ontario

Perfect Spraying of All Materials

What causes and how to prevent orange-peel effects, pock-marking, pebbling and other defects which sometimes show up after spraying paints, enamels, shellacs, varnishes, lacquers, stains, fillers, etc.

By R. L. Masterson

ONE of the troubles often encountered when spraying paint, varnish or lacquer materials is the pebbly or pock-marked surface, which is sometimes called "pitting." For clearness, the term pitting should be reserved for that condition of the surface caused by water, oil or some other material preventing the coating from forming a continuous film, and showing up as little round craters similar to what would be left by bursted bubbles. The uneven surface condition caused by improper application should be called orange-peel effect, pock-marking, pebbling, goose-flesh, or some similar name to distinguish it from true pitting.

Pebbling results from either the improper application of the finishing material, or it may be due to the material itself not being of the proper construction for spraying. It is usually possible, however, to get good results by spraying practically any material, provided the nozzle adjustment and air pressure are correct, and the right amount of suitable reducer is used.

Air Pressure

The most frequent cause of pebbling is either too high or too low air pressure for the size of the nozzle and the body or viscosity of the finishing material. If the pressure is too low, the material is not properly atomized; it goes on in "chunks" which do not level out properly before the coating gets "set". If the pressure is too high, too much of the volatile thinners are evaporated, so the sprayed material strikes the surface in a partially dried state and does not level properly. By adjusting the pressure correctly, most pebbling can be overcome.

Holding of the gun too close or too far from the surface is another cause. This acts in much the same way as if the air pressure were not right. If the gun is held too close, the material does not become properly atomized; if it is held too far away, much of the thinner is evaporated and the ability to flow or level out is lost. This fault often occurs where operators are on a piece work basis and are in a hurry to coat the article as quickly as possible.

Spraying warm varnish or similar materials on cold surfaces could also cause pebbling, as could the use of air that is so much colder than the finishing material that it chills and prevents the finish from leveling out properly.

Peculiarities of Materials

Lacquers and other materials which set very quickly after being sprayed, give the greatest trouble from pebbling. If after all the other factors have been checked and regulated, pebbling still persists, it may be that the

coating itself contains thinners which evaporate too quickly.

Some lacquers, in their present state of development, have a tendency toward pebbling, because very volatile materials must be used to dissolve the ingredients and to obtain quick drying. By properly adjusting the spray gun, air pressure, distance from the surface, etc., it is possible to get remarkably smooth work with properly constructed lacquers.

It is important to adjust the air pressure, the size of the nozzle, the distance of shooting spray, the body of the coating—and the temperature of the air, the finish material and surface being sprayed—so they harmonize with one another. If attention to these details does not remedy the trouble, it is time to put the question of getting the right kind of material for spraying to some of the old, established manufacturers who have made a study of the subject.

Materials that give good brushing results can often be made to spray satisfactorily, provided the proper adjustment of gun nozzle, air pressure and reduction is found. It is better and safer, however, to consult reputable manufacturers who have studied the subject and who offer finishing materials especially adapted for spraying.

Paints and Varnishes

A paint or varnish material that sets rapidly and fails to flow out, can sometimes be made to flow by raising the air pressure. In other cases it may be necessary to change the kind of reducer used, or even get a new paint or varnish. It is well to remember that a coating which levels out perfectly under all conditions, is usually thinner in body or slower in drying than one which does not flow so well.

Heavy-Pigmented Materials

Rough stuff, sanding surfacer, iron filler, wood filler and similar heavy-pigmented materials should be sprayed with a wide nozzle opening, and with rather low air pressure. If the air pressure is too high the material may hit the surface in a semi-dry condition, which causes much of it to be blown off in powder form, and gives a powdery, porous surface when sanded or rubbed.

Color Coats

Japan color or ground color should be sprayed very carefully, with the air pressure and material-feed properly adjusted to prevent pebbling, as very little sanding is permissible on these coats. It is advisable to use a material that is recommended for spraying by the maker.

Color varnish and enamel require careful application also. It is necessary that they be properly constructed for spraying and that the type of gun, air pressure, etc., be carefully selected. There are now on the market spray guns which use low pressures and which are designed especially for applying color varnishes and similar coatings, where the pebbling or orange-peel effect must be kept down to a minimum.

Stains and Shellacs

Stains, whether of the water, oil or spirit type, can be applied by spraying if low pressures and small nozzles are used, so that no excessive quantity of material is discharged.

Standard cuts of shellac and shellac substitutes are usually reduced for spraying. The pressure should be lower than for the av-

erage varnish material. Also, a smaller nozzle should be used and the flow of material to the nozzle should be cut down somewhat, as there is danger of flooding the work, especially if the gun is held too close.

Nitro-cellulose Lacquers

Several things must be watched closely when spraying nitro-cellulose lacquer materials, whether clear or colored. In general, the air pressure should be considerably lower than that used for paint or varnish materials. Only enough air should be used to "split" or atomize the material properly, as an excess of air will evaporate the volatile materials to such an extent that a considerable quantity of over-spray or dried powder will collect on the surface.

The gun should be held closer to the work than for paint and varnish materials, for the same reason. The air line must be absolutely free from water and oil, for if either are present in the application of lacquer, the work will be spotted white. A full, wet coat is the secret of good results with lacquer; there is very little danger of running or sagging, as is the case with paint or varnish materials which dry more slowly.

Black baking japans and similar materials which are usually applied by dipping, do not spray very well—unless constructed especially for spraying—because of the danger of reflowing and forming sags after the work has been coated. Baking japans especially designed for spraying can be had from reputable and well-established varnish manufacturers.

Handling of Gun

Regardless of the type of material being applied, the spray

At left: Spraying finish on a bed end—using material from pressure container.

At right: Spraying finish on a wicker rocker—using material from a cup attached to the spray gun.

gun should be held far enough from the work to secure proper atomization, but not so far as to allow too much of the volatile materials to be evaporated. If the gun is not held the proper distance from the work, there is danger of getting a pebbled or orange-peel effect, or there may be runs, sags and a number of other defects.

Where wood surfaces are being coated, it is well to follow the grain of the wood; never zigzag over the surface; for by so doing a very uneven coat is obtained. Whether the article is wood or metal, start at one end of the surface and go all the way across to the other end. Be sure to go beyond the edge of the surface before swinging back in the opposite direction; otherwise there is danger of piling up the material too heavily in some spots, causing runs and sags.

Use an even, swinging motion, moving forward just fast enough to give a good, even, wet coat without sagging. Hold the gun at right angles to the surface being sprayed at all times, and be careful not to pull it farther away from the work at an angle near the end of each stroke.

Lapping; Cross Spraying

When the spray gun is held at such a distance from the work that it seems to be applying a six inch wide spray, it is really covering solidly only a width of about four inches, one inch or so on either side being blended out. Therefore, in order to secure an even coat, it is necessary to lap over enough on the following stroke across to solidly cover this blended portion. With lacquer materials, this means that sometimes about half the width of the spray will have to be overlapped on each succeeding stroke.

When applying certain materials which are none too strong in hiding power, it is well to spray each coat at right angles to the previous one to prevent streaks of stronger color in some spots than in others. By this I mean that if one coat is put on from right to left, the other should be applied from top to bottom, or up and down across the path of the spray in the first coat.

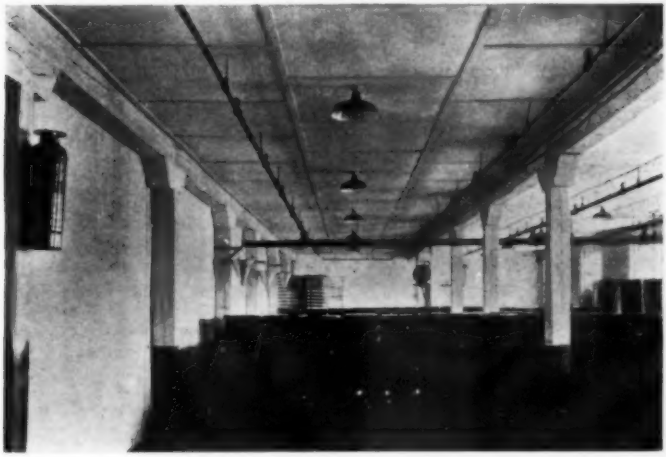
When spraying a flat surface that lies level, always start at the nearest edge and work back. This prevents blowing air over the surface already coated and assists in the flow. It is especially important in the application of lacquer materials, as otherwise there is danger of the over-spray settling on the coated work and leaving a rough surface.

The Human Element

While all of the foregoing suggestions and recommendations are good points to keep in mind when spraying, it should be remembered that the skill and experience of the operator has as much or more to do with satisfactory results as any one factor. It is the "man behind the gun" that does the work, and to get good results he must be interested in his work. He must use his brains as well as his hands.

Paasche Man Transferred

Mr. E. J. Clark, who has been with the Paasche Airbrush Co., as assistant Sales Manager for several years, has been transferred to the New York office of that company as Sales Manager of the New York district. Mr. Clark's long experience with pneumatic and electrical equipment, places him in an excellent position to serve this territory.



Furniture Finish Drying Rooms

Foreman Finisher of Virginia Furniture Co. describes and illustrates finish drying rooms and the apparatus used therein, at this company's new factory in Martinsville, Va.

By O. L. Farris

AMONG the several factors taken into consideration when we planned finish drying rooms for service in our finishing department, the following were of outstanding importance:

1—Progressive spraying and drying operations along a continuous line, to be laid out on the second floor of a long brick building.

2—Installation and operation costs to be low, but equipment to be effective and economical in results produced.

3—Nature of equipment to be such that rooms can be easily changed in size, or partitions and equipment removed entirely to permit of utilizing the space for other purposes any time in the future.

4—Drying rooms to be used for accelerating the drying of filler, shellac and two varnish coats now used in the finishing of bedroom furniture.

5—Drying rooms to be clean, well lighted and equipped with modern fire extinguishing apparatus.

Accordingly we decided to use space adjoining one outside wall and one crosswise partition wall —both walls being of brick. The three drying rooms extend lengthwise of the building along one outside wall; they are therefore

in straight alignment but they do not adjoin one another end to end. The drying rooms are partitioned off from other factory space by heavy canvas curtains which roll up like ordinary dry-kiln curtains.

Curtains for Partitions

We hung the curtains alongside the regular supporting posts in the building—10x10-in. wood posts which are spaced 15-ft. apart on centers. The curtains fit up closely all around the edges when let down. One or two, or all of the curtains inclosing any one of the three drying compartments can be raised to open the inclosure so that workmen can put in or take out furniture with the greatest possible dispatch and convenience.

Considering each of the square spaces set off by four supporting posts (or by two posts and an outside wall) as a bay, each of the three drying compartments is two bays wide, or 30-ft. Two compartments are five bays long (75-ft.) and one is seven bays long, see Fig. 1. Drying room No. 1, in connection with space outside the room but adjoining it, is used for speeding up the drying of the filler and shellac applications. Drying room No. 2, which is the largest of the three, is used for drying the first coat of varnish, and No. 3 serves similarly for the second coat of varnish.

The stations where these finishes are applied are close to the charging ends of the respective drying rooms so that as soon as the filler is applied and wiped, and as fast as the shellac and varnish coats are sprayed on, the articles so treated can be advanced directly into the proper drying rooms. One operation and drying period follows another in natural sequence along a straight line of movement. No back tracking or congestion occurs.

Controlled Air

It is a recognized fact, I believe, that every finish drying room should have:

1—Controlled heat to raise and hold the temperature within certain limits suitable for the type of work at hand.

2—Controlled moisture to maintain humidity within reasonable limits favorable for the character of the drying operation.

3—A controlled movement of air over and around the articles to be dried.

4—Adequate ventilation to admit fresh air and release moisture and fume-laden air.

For producing these requirements we have provided in each of our drying rooms: 1—steam

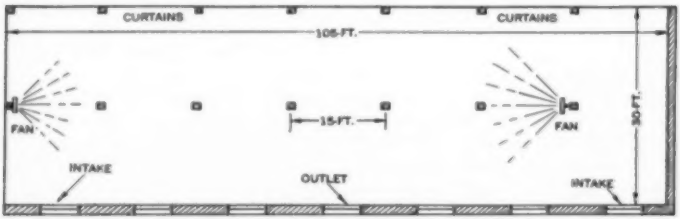


Fig. 1—Plan of one of the three drying rooms.

SINCE TRADE 1846

CLOVER M & L LEAF

MARK

Industrial Finishes.

VARNISHES~ENAMELS~LACQUERS~JAPANS

THE CORRECT PRIMING COAT UNDER LACQUER

Flint Lacquer Primer

A Lacquer foundation for a Lacquer finish.

Troubles caused by the use of shellac and shellac substitutes are eliminated because, being a pyroxylin material, it knits perfectly with the succeeding coats of lacquer.

Dries quickly and sands easily—yet is elastic and durable.

Foremost manufacturers of case goods, tables, chairs, radio cabinets, etc., have adopted *Flint Lacquer Primer* as their standard first coater for clear lacquer.

Place a trial order and convince yourself that **Flint Lacquer Primer** is the correct foundation for your Lacquer finish.

MAYER & LOEWENSTEIN~
LONG ISLAND CITY, NEW YORK

coils along the outside walls under the windows, 2—electric fans which not only create and maintain a movement of air but which can be operated in such a manner as to release moisture vapor into the air, 3—adjustable vents in the outside windows to admit fresh air and release foul air.

In each drying compartment we have two electric fans which can be run with or without the humidifying feature in operation, two fresh air inlets and one outlet for foul air. The fans are mounted at opposite ends of each room, as shown in Fig. 1. Fresh air inlets are in the lower sash of outside windows near each end of the room, as indicated by arrows in Fig. 1.

The outlet vent is in an upper sash of a window near the center of the outside wall, as marked "outlet" in Fig. 1. This outlet vent is connected to a sheet-metal flue which extends upward along the outside wall and reaches a point a few inches above the roof. The intake openings have no flues but are capable of regulation by means of slides. A single 10x14-in. pane of glass in the sash was removed to form each of the air inlets and outlets.

Fig. 2—Close-up of one of the humidifying fans.

Humidifying Fans

The type of electric fan employed is one that is used extensively in tobacco drying rooms in this section of the country. It is called a "humidifier" and is driven by a ball-bearing electric motor rated at ⅛-h. p.

On the end of the motored fan shaft is a conical disc 16-in. in diameter, and on the other end is a powerful fan. Around the circumference of the disc are several hundred stationary copper teeth. Cold water is fed by gravity through a ¼-in. pipe to the center of the rapidly revolving disc and is thrown by centrifugal force from the rim against the teeth with such power that it is broken into very fine particles. As a result a mist or vapor is formed and blown from the front of the machine by the circulation produced by the fan. This mist or vapor is dissolved in the air, see Figs. 1 and 2.

The high evaporative efficiency of the humidifier is due, it is claimed, to the large number of teeth which break up the water into fine particles. This avoids crowding too many of the particles into a small space, and gives the air which passes the teeth, opportunity to carry away the maximum amount of water vapor.

The large volume of air moved by these humidifier fans assures even distribution of moisture throughout the room.

Beauty, Quality & Endurance

—*in all Pecora Products.*

Undercoats, Enamels, Lacquers, Varnishes.

Rhino-Var Industrial Varnishes

Not one varnish for all purposes but a varnish for every purpose

RHINO-VAR is not the name of a "universal" varnish, but is the name applied to our entire varnish line. *We make a separate varnish for every purpose*, except in few instances where one varnish will give the desired result on more than one class of work.

If you are bothered with any varnish problems, give us a chance to help you—our sixty-four years' experience is at your service. Ask for free booklet, "Pecora Varnishes," it contains some helpful information.

PECORA PAINT COMPANY

3rd. & Sedgley Streets

Established 1862 by Smith Bowen — Philadelphia, Pa. — Incorporated 1911

Usual Drying Schedule

For drying the articles in a filled room over night, we maintain a temperature of 100 to 110-deg. F., and operate the humidifying fans from six o'clock in the evening to four o'clock in the morning; then the watchman turns them off. From four o'clock in the morning until we start to work, the air in the drying rooms gradually decreases in moisture content and becomes properly conditioned for "tapering off" the drying process to suit our class of work.

Clean, Safe and Light

The view inside our largest drying room, as illustrated at the beginning of this article, shows that we believe in neatness, cleanliness, good light, safety and fire protection—as well as economical production. Each of our three drying rooms is ceiled with wall board and painted white. Centered in the ceiling of each bay is an electric light under a 14-in. reflector.

In addition to the automatic sprinklers and chemical fire extinguishers, which are installed throughout the plant, we also have several buckets of sand hanging from posts in each of the finish drying rooms.

More About Striping

I do not understand the article, "Important for the Beginner in Striping," by C. S. in the February issue, pages 8 and 9. C. S., in referring to my article in Dec. issue, entitled "Striping—For the Beginner," asks at the commencement of his article, "How is the beginner to determine just what is the proper consistency for striping? In the last paragraph he says the proper mixture requires practice.

I stated in the December issue, that "much painstaking practice" is needed, and recommended working the brush out on a palette, which, of course, would be the last mixing before stripe is applied. Some work requires stiff material, other medium, while still other work calls for real thin material; so it follows that practice alone will teach the proper consistency.

As for the brush skidding around, this can only be overcome by practice; it doesn't occur to an experienced striper.

In loading a brush, where real thin material is to be used, there should be no pull on the brush. Work it out on palette, as I advised in the December issue of INDUSTRIAL FINISHING, to get the brush properly loaded.

In making very fine lines on a smooth surface, work the brush out so that it pulls. How much it should pull is up to the person using the brush.

A beginner will always have trouble with the brush making uneven lines; practice alone will pull him through, providing there is nothing radically wrong with the brush, such as a hair poking out sideways.—Fred Mannhardt.

Note by Editor: Mr. Mannhardt and C. S. have contributed some splendid material on free-hand brush striping, for which we are all very thankful, but—boys, if you go any further at this time on this subject, you may get into mild argument. Let's start a discussion on another subject!

Sharples Solvents Corp. Announces Appointment

The Sharples Solvents Corp. of Philadelphia, announces the appointment of Chemical Solvents, Inc., 297 Fourth Ave., New York City, as its exclusive Eastern sales agent. Sales and distribution of the company's amyl alcohol and amyl acetate in the territory west of Pittsburgh will be handled direct by the Sharples Solvents Corp. through its own office, Railway Exchange Bldg., Chicago.

THE individuality of fine furniture is reflected not only in its design but in the finish. The two go hand in hand and enhance each other. That is why Vitraloid Wood Lacquer No. 2546 is the choice of many discriminating manufacturers.

Vitraloid Wood Lacquer No. 2546

This wood lacquer may be applied directly over stain or filler without danger of bleeding or softening the undercoats. No special manipulation is necessary to secure perfect results—use the lacquer just as it comes. And Vitraloid Wood Lacquer No. 2546 costs no more than a rubbing varnish, which fact, considered with the inherent properties of the material, should lead any aggressive manufacturer to investigate its adaptability to his work.

A test is most convincing. May we send you a generous no charge sample? Write today—a testing quantity will go forward to you at once.

PRATT & LAMBERT-INC.

Manufacturers of

VARNISHES ENAMELS LACQUERS

84 Tonawanda St., Buffalo, N. Y.

New York Buffalo Chicago San Francisco

Bridgeburg, Ontario

Lacquering small wooden articles economically

How to Use Dipping Lacquers

Explaining the practical requirements of satisfactory dip lacquers and describing how they are applied to toys, wood turnings, lead pencils, etc., on a low cost, quantity production basis

By J. C. Alsee

THIS METHOD of lacquer application is cheaper and more rapid than brushing or spraying, and is the oldest means of applying lacquers.

An ideal dipping lacquer is one that produces the greatest covering, tenacity and luster in the least number of coatings, and one that has freeness of drips. This latter condition is maintained by the introduction of the proper amount of reducer, as recommended by the manufacturer of the dipping lacquer. Objects coated by this method are too numerous to mention.

The present day American toy manufacturer feels that the finish must last as long as the object itself. This finish must be waterproof and must withstand hard usage as well as varying weather conditions. The coloring matter must be of a permanent nature and must not fade. The maintained finish must be so arranged as to produce a fairly high gloss with a minimum number of applications.

Wood Turnings

Hardwood turnings can be given a better finish with the least number of coatings, because of the close grain of the wood. The softer woods absorb more of the lacquer. Where the softer woods are to be lacquer dipped, they are usually first tumbled with sawdust in a tumbling barrel. This operation knocks off the nibs and rough edges. The next step is usually a tumbled filler coat, also applied by dipping. This filler is generally of a transparent nature, and it must be such that it will not be "lifted" by the lacquer coats applied over it.

Another system used for lacquering soft wood turnings is to first coat the articles with clear lacquer, by dipping. This coat acts as a sealer. It is imperative that the wood be rendered free from oils, grease and like foreign matters. This is usually accomplished by first immersing the articles in thinner and thoroughly drying them afterward.

On the higher grade of wood turnings, a coat of lacquer primer is usually applied. This lacquer primer should be one that has filling properties, dries quickly, adheres tenaciously, sands easily and holds out the succeeding lacquer coats. After the filler coat has been applied, the wood turnings are generally placed in a warm room for 24 to 48 hours to make doubly sure of their dryness before the lacquer is applied. The objects are attached to dipping boards by nails or

Du Pont Products

THE du Pont line of finishes will cover practically all of the specialized requirements of INDUSTRIAL FINISHING. If, however, a problem arises not adequately dealt with by your present finishing technique—the facilities of the du Pont laboratories and staff are freely offered to you for the best solution of your problem. Such circumstances have, in the past, made clear to many users of du Pont products the advantages of dealing with a company whose experience in chemical research is second to none.

For full data about the du Pont Industrial Finishing Service, and other information concerning the du Pont line, write to E. I. du Pont de Nemours & Co., Inc., Chemical Products Division, Parlin, N. J., Chicago, Ill., San Francisco, Cal., Everett, Mass., or Flint Paint and Varnish Limited, Toronto, Canada.

DU PONT

wooden pegs, prior to being dipped into the dipping chamber.

It is always a good policy, when colored lacquers are used, to first stir the lacquer thoroughly with a wooden paddle to insure the proper color blend, as well as to get into perfect solution particles of hard pigment that have settled in the bottom of the container. In so doing, bubbles will invariably arise to the surface. It is best to wait for a moment or so for these air bubbles to break. However, if a small wooden paddle is immersed in the lacquer, just about one inch below the surface, and these surface bubbles skimmed to the side of the container, freeness of the surface will result.

Dipping Machines

The greater portion of articles coated with lacquer today are finished with a dipping machine. These machines will dip objects up to 12 inches in length, at the rate of 10,000 to 50,000 per day. This depends on the number of applications and the size of the object.

The articles are immersed in the lacquer and slowly withdrawn by mechanical means, at a speed that approximates the rate of flow of the lacquer. When a dipping machine is used, a heavier-bodied material can also be used. This eliminates an extra coating operation, at a much thinner body. However, the nature of the object to be coated has a lot to do with the body of the lacquer to be used. If projections are on the surfaces, it is best to use thinner bodied lacquer material. Under ordinary conditions the objects should not be recoated in less than one hour.

The dipping room should be free from draughts of air. If this can not be overcome, the addition of a retardent should be used. This retardent or slow evaporating combination of solvents, made up of higher boilers, is only recommended in a few cases, where the relative humidity is exceptionally high. The manufacturer of a dipping lacquer should be able to supply users with a dipping reducer that is not too expensive—one that should, when used with the average dipping lacquers, blush around 84 percent relative humidity.

Dipping Lead Pencils

In the finishing of pencils, specially constructed racks are used. These racks hold as many as 200 pencils, and have needle points which hold the pencils in place. The machine is operated to give a special slow immersion and withdrawal speed. The lacquer is of a very heavy body. About three gross of pencils are coated in a single operation, and as many as 100,000 per day. The vibration of the machine should be reduced to a minimum.

As soon as the pencils leave the surface of the liquid in the dipping tank, they should be allowed to drain for a moment; then they are re-immersed over the tip of the pencil into the lacquer, which in turn dissolves the lacquer string that has drained from the ends, so that there is practically no loss. Usually two coats are applied, both of them in the same manner.

Some manufacturers place the racks of freshly coated pencils in a heated room. This helps to prevent blushing and it also speeds up the drying of the lacquer. After the second coat is applied, the racks are allowed to stand in slightly heated rooms over night

SPRUANCE QUALITY

PASTE FILLERS

Spruance Quality Paste Wood Fillers

have proven their superiority in the finishing room because they:—

1. Completely fill the pores of the wood.
2. Provide a firm and lasting foundation.
3. Reduce the number of finishing coats.
4. Wipe off easily, leaving no pin holes.
5. Dry hard in twenty-four hours.
6. Do not settle hard in container after thinning.

THE GILBERT SPRUANCE CO.
PHILADELPHIA

"A FINISH FOR EVERY PURPOSE"

and the following day they are stamped, assembled and packed.

A clear priming coat or filler is sometimes used. Sometimes a clear lacquer top coat is used. This adds greatly to the maintained luster. Great care should be taken to make sure that the pencils are free from oils, grease and paraffin. Paraffin especially, as this is used in shaping certain kinds of pencils.

Imitation Fumed Oak Finish

A great many firms today are looking for a low cost finish, such as fumed oak, as many people call it. What I have in mind is not fumed with ammonia in a fuming box, but it answers the purpose and makes a No. 1 finish and a durable one, at low cost.

Taking the wood surface in the white, see that it is sanded smoothly and that all scratches are removed. Next brush on your unifoam the same as if you were putting on water stains. Get it as even as possible and let it stand until dry. Then sand again lightly, just enough to smooth it, but do not cut the edges through. After this is done, dust off the surface thoroughly.

Now take your oak stain, and stain as before. Sand this very lightly after it is dry—just enough to smooth it down. Take white shellac and thin it down according to your own good judgment. The surface does not need to be coated heavily—just enough to "hold the grain." When dry, sand as before. Put on your liquid wax and let dry. Rub first across the grain and then with it. This finish can be completed and the furniture made ready for shipment in one day's time.

This same finish may be applied to woods other than oak. Take mahogany or maple for example: Stain the mahogany, shellac it, sand and wax. For maple, use natural shellac, sand it and wax.

Any manufacturer of colors and stains advertising in INDUSTRIAL FINISHING can tell you about fumed oak stains, and these firms are back of their products, so it is better to buy of them than to try to make your own.—L. S. Decker.

What Cheap Lacquer Did

Recently, in a certain finishing department, it was observed that a change had occurred in the shade of a finish which was standardized by a wood-finishing concern. The same stain had been used but a different clear-finishing lacquer. One brand of lacquer had a tendency to bring out the richness of the stain, but the other acted just the reverse; it seemed to give the stain a "perished appearance." The reason for using the different lacquer was on account of its cheaper price. Now the finished work does not look right and the cheaper lacquer is now the dearer.—Joseph Cowan.

At Merrimac Chemical Co.

Dr. Lester A. Pratt, formerly Director of Research of the Merrimac Chemical Co., assumed the duties of Manager of the Anderson Chemical Co. Division of the Merrimac Chemical Co., on March 14, 1927.

Mr. H. O. Lichtenwalter leaves that organization to enter a new field of activity.

Mr. W. S. Wilson, formerly Director of Plant Development, becomes Director of Research of the Merrimac Chemical Co., Boston, Mass.

WE ARE NOW *COMBINING* A VARNISH *and* LACQUER

We have had many suggestions from superintendents and finishing foremen that too much importance is attached to the extreme speed of Lacquer finishing, to the detriment of other desirable qualities. The greatest point of criticism of the average present day furniture lacquer is that it is impossible to get building without brittleness and that these lacquers set too quickly.

As a result, we have developed No. 88 Lacquer.

No. 88 Lacquer can be truly termed a varnish lacquer. It should be coated twice a day and one full day allowed before rubbing to give best results. Its performance may be compared with that of a very quick-drying varnish, except that such a varnish would be very brittle, while No. 88 is tough.

It builds and levels as the varnish would and rubs twice as easily.

May we send you a trial order?

Murphy
KAURIOL NUMBER 88 Lacquer

MURPHY VARNISH COMPANY
NEWARK · CHICAGO · SAN FRANCISCO · MONTREAL

Sell the Surface,
and you sell all

The Finish as a Selling Factor

Retail Merchandising Consultant reveals some interesting experience at the selling end, which emphasizes the value of high quality finish in making sales

By E. J. Clary

RECENTLY I overheard a crack piano salesman in action, and as he went over the points one by one, he came to the subject I was particularly interested in—the finished surface. I wondered what he could find to say about it. As a matter of fact, he gave more time to this feature than to many others which might have seemed much more fruitful.

In the first place, he had the prospect pass her hand over the finished veneer, noting its smoothness. Next, he showed how the veneer was handled on the edges and corners of the instrument, and the general uniformity of color in the flat surfaces and the edges. Then he held a light over the flat top of the instrument and had the lady glance at the reflection in which, as he pointed out, there was practically no distortion.

"Now," said the salesman, "when you realize that only the best mirrors are absolutely free from such distortion, you will recognize the exceptional care taken in finishing this piano."

The sale was made and I was impressed with the fact that the finish of the instrument had a lot to do with the success of the transaction.

The finish on furniture and musical instrument cases has a great influence on sales, especially in the case of such high grade pieces as good pianos. This fact was recently admitted by a leading radio retailer who declared that the quality of finish on the set had a decided effect upon sales. There are good reasons for this and I can quote here what I recently saw on a card, posted in a large Chicago furniture store:

Value of Furniture Selling Points

First, color and wood surface.
Second, shape and design.
Third, utility.
Fourth, price.

In other words, as the manager of this store explained, when a prospect comes on the floor and glances at a table, the first appeal is its general appearance—the surface and the finish. This first general impression is a deep one usually, and it is very important in making a sale of any merchandise.

So true is this fact that one of the leading piano manufacturers gives as many as eight coats of gold lacquer, each one being rubbed by hand, to its piano plate. Salesmen count this old gold effect and its smoothness, as a chief talking point on the floor.

Remove Defects

The public is quick to detect defects in veneer surfacing. I

If you will write us, we'll do our best to right you on the Lacquer question.

We have made it profitable for many users of lacquer to write us. Practically every one of them were skeptical. They doubted that we had a better lacquer—but they know now.

Our list of customers is growing steadily every month—and it's not because they love us. Tests in their own shops, on their own merchandise had to prove every case. It did—without any question.

Are you ready to adopt a better lacquer?

"No Tampering with Quality"

The

ROCKFORD VARNISH

Company

ROCKFORD, ILL.

have seen this proved in dozens of cases in my contact with retail furniture selling. Dents, caused through careless packing or handling, will do more to reduce the amount for which the piece can be sold, than almost any other type of defect.

Even the best surfacing jobs on musical instruments and furniture require attention on the part of the retailer, but in many cases the best expert efforts of the finisher are entirely lost on the customer, through the dealer's failure to keep the goods cleaned and in good condition at all times. The surface must be free from all defects. The finisher has no control over this situation. All he can do is to turn out the most perfect surface consistent with the selling price.

The larger piano houses today realize the vital importance of good finishing—its appearance, its quality and its durability—and are willing to spend money to protect the work of the factory in this respect.

How to Emphasize It

There are two ways in which the competent retailer of furniture or musical instruments can take advantage of the quality of finish, which the manufacturer strives so hard to make a feature of his product. One is an appeal to the customer's eye, and the other is an appeal to his sense of touch. Given two articles placed side by side, the one with the smoother and more reflecting finish will, nine times out of ten, be selected by the customer in a furniture store.

Several of the largest furniture houses are so conscious of the value of finish as a factor in selling, that they are giving their window display pieces special treatment before putting them on exhibition.

Importance of Better Packing

Although manufacturers are taking reasonable precautions to protect the finish on their products, it is nevertheless a fact that a surprisingly large percentage of furniture is dented, scratched and otherwise marred by the time it reaches the retailer's floor. Small stores have only limited facilities for reconditioning this slightly damaged goods. I have considerable business with retail furniture and musical instrument dealers, both large and small, and I know that marred surfaces are a constant source of trouble to them.

Body painting problems which concern the engineer have been reduced greatly by the use of lacquer or cellulose base products, but there can always be a great deal accomplished in solving paint problems by more consideration of the paint department when a body is designed, especially regarding mouldings, sharp corners, open joints, etc.

Some problems with lacquer at the edge of applied mouldings and open joints will be overcome when it has been improved so it will not bridge but fill as varnish products.

Clear Duco for Brushing

E. I. du Pont de Nemours & Co. announces that clear brush Duco, for which there has been a demand, is perfected and ready to be placed on the market. It was developed after a long series of tests, in which more than 3,000 experimental formulas were devised, and the product submitted to exhaustive trials in the company's research laboratories. It was also submitted to many practical tests by architects and painters.

TRADE DURO MARK

"Stands for Durability"

DURO finishes represent a standard, recognized line of Enamels, Lacquers and Undercoatings that have won an enviable reputation for quality in nationally known furniture lines.

BACK of DURO Finishes—a new and modern factory, a well-trained and skilled organization, color harmony and design advisory service, and traveling representatives who know correct finishing and progressive handling methods.

We solicit your inquiries.

O'Neil Duro Company

Established 1893

884 Greenbush Street Milwaukee, Wis.

Relating to Wood Finishing

Why the Finish Crazes and Cracks—II

Revealing additional causes of the familiar checked condition which sometimes appears on the finish of furniture and pianos, and explaining a lacquer treatment which saves an expensive refinishing job

By Chas. Blanford

REGARDLESS of how good the finishing material may be or how carefully it is applied and dried, hair lines often appear after sudden changes in temperature. The outer film of finish, becoming cold first, shrinks in volume and becomes less elastic. As the bottom portion of the film gets cold, it also shrinks in volume; this may cause the varnish to show hair line cracks. If the changes of temperature are sufficiently severe, or if they are repeated frequently, the hair lines may develop into checks or cracks.

Reasonable Precautions

This is why a heavily varnished article, such as a piano, should be carefully protected with a cotton flannel cover, newspapers, or some such material to protect the finish from sudden changes in temperature during shipment in cold weather. The finished article should be moved gradually from one temperature to another to avoid any extreme change in temperature in a short space of time. Care should be taken in transferring the finished product from a warm factory or warehouse to a cold shipping platform or box car. Equal care should be taken in bringing the article into a warm room from a cold atmosphere, to prevent condensation of moisture on the cold surface.

Pianos and similar objects should not be placed close to a cold outside wall in the home, because of the danger of sudden changes in temperature. Neither should they be left in a room that is heated only occasionally, as the finish will become quite cold when the room is unheated, and will quickly warm up again when the room is heated. Particularly is this condition bad on the finish if the room is heated by means of a stove or open grate which may allow the heat waves to strike the finished surface directly. Exposure to the hot rays of the sun also may cause checking or cracking.

It is these repeated changes in temperature or moisture content that start the finish on the road to deterioration, in many cases. The first time the finish undergoes a change of temperature there is probably no visible ill effects. After a few repetitions, however, hair lines may begin to form in the finish while it is cold and apparently disappear when it is warmed up again. In reality, these hair lines are still present,

A Quicker and More Durable Industrial Finish

BERRYLOID

The permanent high-luster lacquer

BERRYLOID excels many lacquers in all respects and all lacquers in many respects.

Here is a high-quality pyroxylin enamel that speeds production, lowers costs and produces a finish so superior to the average that the difference is astonishing.

Use it on either wood or metal. You will find that its covering quality is unusual, that it reduces sanding to a new minimum, that it possesses a high, natural luster requiring little polishing, that its colors hold—and that the finish won't rub off.

For complete information, prices and samples, address Industrial Department

BERRY BROTHERS INC.

Varnishes Enamels Stains

Walkerville, Ont. Detroit, Mich.

but the expansion of the finish under the influence of heat has reduced their size and made them invisible to the naked eye. They become visible again when the finish gets cold and after several repeated changes they may finally develop into large checks and cracks.

Cleaning and Polishing Compounds

Another condition which might cause checking, is the use of an improper polish or cleaning compound on the finished article after it is in the home. This might cause a softening of the film or might rob the finish of its elasticity and cause checking or cracking with changes of temperature or moisture content.

In spite of all precautions, it is well to remember that no finish or finishing material will last forever. Finishing materials are applied to wood and metal surfaces to protect and beautify them. These protective coatings must fight the elements constantly to give immunity to the wood or metal on which they are applied. In carrying on this fight, naturally, the protective coating is affected to a certain extent, because it must rebuff destructive agencies which otherwise would destroy the wood or metal itself. Naturally, it cannot survive forever in this deadly battle, unless it is reinforced occasionally.

Lacquer Almost Immune

Now that lacquers and durable enamels have been perfected, they come nearer to lasting forever than any finishing materials heretofore used. Especially are lacquers almost immune from checking and cracking, as they dry by evaporation alone and there is very little chemical change in the structure of their film with age. Under severe conditions similar to some of those mentioned above, however, even lacquers have been known to crack.

Almost ever since varnish has been used for finishing furniture and other wooden articles, there have been various formulas for making so-called "Crack Amalgamators" for removing checks and cracks which may appear in the finish. Some of the crack amalgamators work quite satisfactorily; others are practically of no use.

Since the advent of heavy-bodied, clear wood lacquers, it has been found possible to apparently remove these checks and cracks so that they do not come back again. Almost all manufacturers of pianos and furniture have a certain number of checked or cracked pieces returned to them from time to time to be refinished. Heretofore, the only safe method for doing this was to entirely remove the old finish and completely refinish the surface, just as though it had never been finished before. The trouble with this system is that the restaining or retoning often results in the color of the finish not being an exact match for the original color. In some instances this is not satisfactory to the customer.

A Lacquer Treatment

Checked and cracked panels have been refinished with lacquer in the following manner: First, dip a cloth in lacquer reducer and go over the cracked surface, applying just enough of the reducer to thoroughly wet the surface—not enough to cause it to raise and blister up as though paint and varnish remover had been applied. Let this stand for sev-

SHARPLES TRADE MARK SOLVENTS

PENTASOL

PURE AMYL ALCOHOL

SPECIFICATIONS

Acidity	Neutral
Ester Content	None
Hydrocarbon Content	None
Water Content	None
Color	Water White
Sp. Gr.	.815 at 20° / 20° / C
Distillation Range	112°C to 138°C

No Residual odor

No "heads" no "tails"

THE SHARPLES SOLVENTS CORPORATION
2304 Westmoreland St., Philadelphia
546 Railway Exchange Building, Chicago

Eastern Representative
CHEMICAL SOLVENTS, Inc., 299 4th Ave., NEW YORK

eral minutes—until it is thoroughly dry. Then sand the checks and cracks with fine sandpaper, to clean the surface thoroughly and partially remove some of the checks and cracks.

Then apply three or four coats of wood lacquer, reducing the first coat slightly to aid it in drying faster and thus preventing it from softening up the old finish underneath, and acting as a paint and varnish remover. The coats following the first one should be used full body. As the surface is being refinished with lacquer, the cracks and checks would still be evident, but as the lacquer dries it contracts and pulls the checks and cracks together so that they gradually disappear. After the last coat of lacquer has dried overnight, the surface can be rubbed and polished if desired, to reproduce the original finish.

This method of removing checks and cracks does not disturb the original color, does not necessitate removal of the old finish, and apparently produces a durable finish which permanently hides the old checks and cracks. In fact, panels have been treated by this method and exposed to alternate cold weather and room temperature for several days, without any signs of these checks and cracks reappearing. As a general rule, however, it is better to completely remove the old finish, if it is badly cracked, as this is a sure method of curing this trouble and preventing it from recurring.

Some Wood Filler Troubles

Foreman finisher points out how settling of filler pigments results in unsatisfactory filling, and tells how to maintain uniform consistency in the filler being used

By J. C. Ketterman

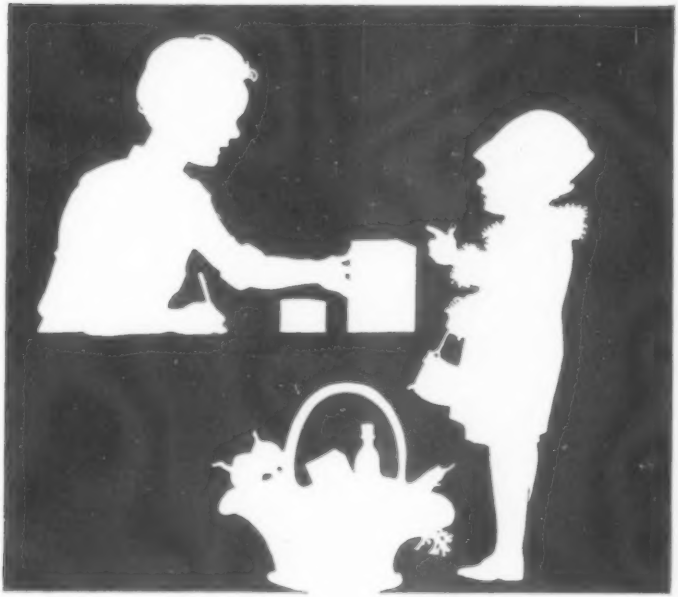
EVERY OPERATION in connection with wood finishing is important, but filling is probably the most important one, because it is the foundation of all subsequent coats of finish. If the foundation is not right, none of the other coats can be right—permanently.

One of the most prevalent of the serious mistakes, in connection with filling, is that of reducing to working consistency, a large quantity of filler at one time. In some shops, workmen reduce enough filler to last throughout a whole day, and keep it all in one vessel.

When a large quantity of thin filler is kept in the vessel from which it is used, it is impossible to keep it uniform in consistency. After filler has been reduced to a working consistency, the pigment rapidly settles to the bottom of the container, and by the time the operator has reached the end of the batch, there is altogether too much pigment for the oil.

One Cause of Trouble

Finishers who reduce their filler in large batches, and keep it



The Finish Makes the Sale

No matter what the product may be, "appearance" has a tremendous influence in the making of sales — no less an influence in keeping the customer satisfied. And "appearance" is one of the assured results that come from the use of Glidden Finishes. There's a reason—after a cooperative study of your finishing needs we supply you with the proper materials, the most practical schedules combining efficiency and economy and help you to work them out.

GLIDDEN
INDUSTRIAL
Lacq

THE GLIDDEN COMPANY · *National Headquarters* · Cleveland, Ohio

uniform...
durable...
easy to spray...
no streaks or sediment..

L-109
flat lacquer

WHAT L-109 has done for others it will do for you. We will ship you a drum or five gallons at drum price, and if it does not please you, any unused portion may be returned at our expense.

Jones-Dabney Company Inc. Louisville Ky.

all in the vessel from which it is used, have probably observed that toward the end of the batch, the filler dries flat in much less time than it did earlier in the day. Here is the reason: Immediately after the filler has been reduced, ready for use, the pigment begins to settle.

At frequent intervals the operator will stir the mixture to bring back the pigment, but between these intervals of stirring he has used some filler from the top. After each stirring of the mixture he has just a little more percentage of pigment than before, because he restored pigment which escaped during the previous interval. When he has reached the bottom of the vessel, he has all the pigment that escaped from the filler used earlier in the day, in addition to that which rightly belongs to the mixture remaining before him.

When this filler is spread over a surface, the proportion of oil to pigment is so small that it dries flat almost as soon as it is spread. This tendency to dry flat so rapidly, is a symptom of trouble that may manifest itself in an aggravated form after subsequent coats of finish have been applied; there is too much pigment to be bound firmly together by the small quantity of oil present at the time.

Nothing is seriously wrong with the practice of reducing, to working consistency, enough filler to last for an entire day—provided it is not all kept in one vessel. The following method is the one I have found satisfactory:

A Recommended Practice

Have two large vessels of equal and suitable size, and one small vessel. In one of the large vessels, break up enough paste filler to meet requirements. This is best done by adding only a small quantity of reducer at the start. Then, with a flat pestle, or by the hand, work the filler until it is smooth and free from lumps. Add another small quantity of reducer, and again work it

Wiping off excess filler from filler-stained oak chairs.

until it is thoroughly mixed. The balance of the reducer may now be added, and the whole poured from one large vessel to the other and back again. Repeat this about ten times to get the whole batch thoroughly mixed.

It is difficult, if not impossible, to make a batch of filler of uniform consistency by stirring with a pestle. One may think he can do this successfully, but he will learn how far he falls short if he pours one-half of the filler into another vessel, and then tests each half with a hydrometer. Frequently the difference between the top and bottom halves is so great that an experienced observer can easily detect the difference with the eye, from the way it pours.

Measure Portions Accurately

Too many finishers reduce their filler by guess, instead of by weight and measure. The only safe way is the accurate way, and the only accurate method is to weigh the paste and measure the reducer.

After the filler has been reduced and mixed to a uniform consistency, about a quart should be poured into the smaller vessel for immediate use. This should be used before an additional supply is taken. Each time an additional supply is taken for use, the filler in the large vessel should be stirred to loosen the pigment from the bottom, and the whole poured into the other large vessel and back again, repeating three or four times to thoroughly mix. When not in use, the large vessel should be kept covered to prevent evaporation of the reducer.

If the finisher finds, when using the filler, that it is becoming too thick as the day advances, or as he nears the bottom of the vessel, he may be sure something is wrong. If filler has been correctly handled, it should remain of uniform consistency until the last bit has been used. One advantage in using filler from a shallow vessel, is that the brush can be dipped well to the bottom, so there is little chance of much pigment escaping from the top.

Spray and Brush

Many finishers have failed in their attempts to apply filler with the spray. As a general practice, filler is applied with the brush, especially on very porous woods. Where there is considerable filling to be done, time can be saved by applying the filler with the spray and then going over it immediately with a brush, using a thin filler to supplement that applied with the spray.

Pinholes

Pinholes invariably result from improperly filled pores. Either the filler was too thin, the coat too light, or it was not worked into the pores properly. Some finishers apply a thin coat and expect to complete the filling by working the surplus filler into the pores during the process of cleaning off. This is never as good as working the filler into the pores with the brush, at the time of applying.

Berry Bros., Inc., Lose Valued Man

Berry Bros., Inc., of Detroit, announce with sincere regret, the sudden death of Henry A. Deihl, on March 18. Mr. Deihl had been in charge of the company's metal-finishing experimental work since 1900. During the course of his work Mr. Deihl visited many plants in the U. S. and Canada and had traveled in Europe. He leaves a widow and grown-up family.

Try it Once!

NEAR LAC

Better Than The Best Shellac

—because it's waterproof
—because it will not turn gray
—because it flows out smoothly
—because it costs less.

Near Lac is a money saver from the start—because a real need for it exists!

NEAR LAC is different. Don't confuse it with "imitation shellacs" or substitutes. NEAR LAC seals the wood, will not turn gray nor string—and it is waterproof. As a first coater, as a sealer of knots, as a sizing—NEAR LAC has no superior. *Yet it costs less than high priced shellac.*

HERE IS OUR OFFER

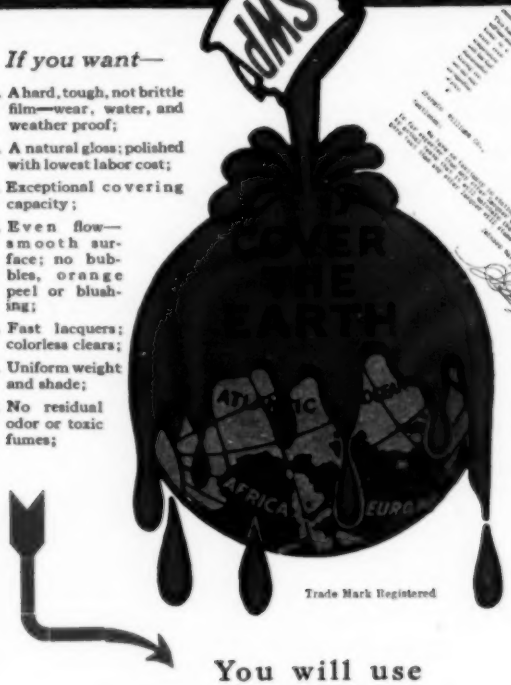
Send an order now for 5 gallons of NEAR LAC at the barrel price.

BOSTON VARNISH COMPANY
867 Everett Station **Boston, Mass.**

SHERWIN-WILLIAMS PAINTS VARNISHES

If you want—

1. A hard, tough, not brittle film—wear, water, and weather proof;
2. A natural gloss; polished with lowest labor cost;
3. Exceptional covering capacity;
4. Even flow—smooth surface; no bubbles, orange peel or blushing;
5. Fast lacquers; colorless clears;
6. Uniform weight and shade;
7. No residual odor or toxic fumes;



Trade Mark Registered

You will use

OPEX

The perfected lacquer enamel

LARGEST IN

WILLIAMS
LACQUERS · ENAMELS

On the Johnson Warm Air Heater the finish must resist comparatively high temperatures and withstand the expansion and contraction of alternate heating and cooling. Opex met all needs in the case.

"Opex stands 50 degrees more heat,"

says Mr. J. S. Daily, Sec'y,
Johnson Warm Air Heater Co.
Sacramento, California

Must your product stand extremes of temperature or humidity? Do these conditions adversely affect its service or appearance?

Opex lacquer enamel retains its color and high finish in the face of severe temperature conditions.

Opex is a revelation and a relief to many manufacturers having unusual finishing problems. Often Opex actually costs less to use than present methods. For a satisfactory analysis of the adaptability of Opex to your needs, just write!

THE SHERWIN-WILLIAMS CO.
CLEVELAND, OHIO

OPEX

THE WORLD

Kindly mention INDUSTRIAL FINISHING when writing advertisers

!

The most unique and distinctive finish offered the furniture trade during the past year was BREVOKRAK—and 1927 will be another BREVOKRAK year.

Pioneered as a leatherette finish for radio horns, its variety of attractive combinations has brought it into use for many other articles, such as radio cabinets, furniture, fixtures, novelties, toys, etc. Ease of application—uniformity of pattern—combinations to suit your particular requirements, are outstanding qualities of BREVOKRAK.

Thorough-going demonstration made at your plant if desired.

!

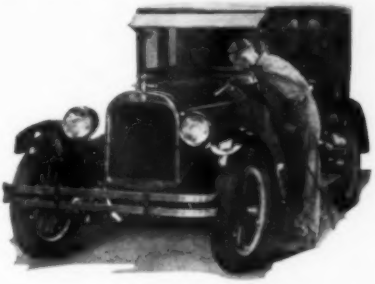
WAUKEGAN CHEMICAL COMPANY

"Values That Endure"

WAUKEGAN, - ILLINOIS

Northwestern Representative
CAPSER LABORATORIES
611 Ryan Bldg., St. Paul, Minn.

One of a series of articles on automobile repainting shops. This one describes the building location and construction, the equipment, and its arrangement, the supply of materials needed for the small repaint shop.



The Automobile Repaint Shop

By K. N. Kathju, M. S.

WITH SPRING ushered almost unexpectedly within our threshold, the roaming spirit of this nation on wheels has simultaneously begun to awaken, after a hibernation period of sloth and lethargy.

To keep apace with the trend of fashion in the automotive industry, very little can be done by Mr. Last Year's car owner, unless the purse be accommodating enough. Three and five-bearing crankshafts cannot be installed in the old motor; oil, air and gas filters cannot be added; body lines cannot be remodeled. Nevertheless, at least the outward appearance can be so adjusted as to make the "old car" look rejuvenated in close conformity to its surroundings, activated by the dawn of Spring, at a minimum of expense.

Refinish with Lacquer

The giant strides made by the lacquer manufacturer, working hand in glove with the buying public, has made it possible for the car manufacturer to paint car bodies in such hues, as could hardly be attributed to the creative instinct of man. Even Nature herself has been nearly equaled in the blending of shades, with the natural result that Mr. Last Year's car owner must doll up his car to maintain social autostatus in his neighborhood, if he cannot afford to replace the "old car" with some latest creation.

Thus the whims of a car owner, more than anything else, are responsible for the establishment of repaint shops in almost every city block. For lack of proper knowledge of materials in use, for lack of information in regard to proper equipment, etc., an ever increasing number of modest, one-man, repaint shops, and even some fairly large repaint business houses, have met with failure. With a view to give prospective investors more than a mere inkling into the great money making possibilities—not at all fraught with possibilities of failure—more or less detailed information is given herein.

Use of Lacquer

The lacquer or paint on a car body serves a dual purpose, namely, that of protecting the surface from the chemical action of the elements and at the same time decorating it with smoothness, luster and color.

Recent efforts to produce material that will not only withstand the destructive action of the elements, but will likewise withstand the ever increasing element of individual carelessness, in not giving the paint or lacquer the proper attention it deserves, have been very successful. Consequently numerous paint shops have sprung up like toadstools, but ever so many of these die an unnatural death since, through ignorance more than anything else, they fail to keep abreast with the latest of all fads and a well nigh popular demand for a variety of colors.

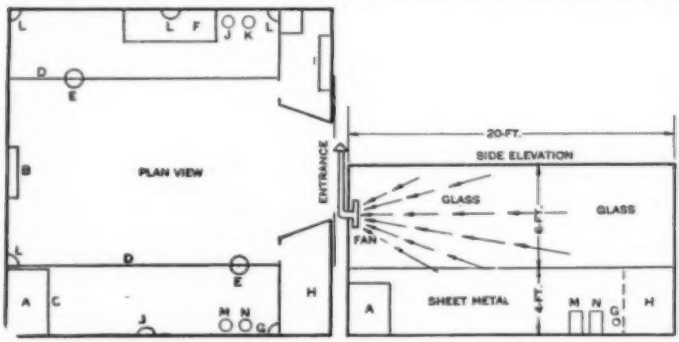
The writer does not hesitate to predict that within a very short time, John will drive his ol' bus into the nearest repaint shop, pick out a color combination in which to repaint his car to match his "fair partner's" exclusive creation of a Paris gown and, an hour later, drive out with a "Color to Match" car. He may even return the following afternoon and have his car refinished to match another one of Milady's gowns, while he goes out for a shave and hair cut.

For purposes of simplicity, the "Modest" and the "Ideal" paint shops will be discussed separately in this and subsequent articles.

The Modest Repaint Shop

The term, "modest repaint shop" is used to designate a paint shop about 20x20x10-ft., and it is generally run by one man.

An ideal spot for such a shop is a vacant lot on which a "day-



Plan and side elevations of modest repaint shop.

A—Motored compressor enclosure.
B—Suction fan.
C—Location of oil and water separator.
D—Line from which lacquer buckets hang.
E—Lacquer bucket, gravity feed.
F—Table for lacquers and accessories.
G—Location of running water.
H—Stock room.
I—Office
J—Scrap lacquer can.
K—Can for used sandpaper, strainers, etc.
L—Electric lights.
M—Can containing towels under water.
N—Can containing clean towels.

YOU will find our method of shading with Brown Lacquer Glazing makes the antiquing of furniture perfectly easy, and imparts that evenness of tone so sought after.

This method followed with Gravarco 1009 Clear Lacquer and Gravarco 1022 Flat Lacquer produces the most durable and economical finish possible in the modern practice of lacquer methods.

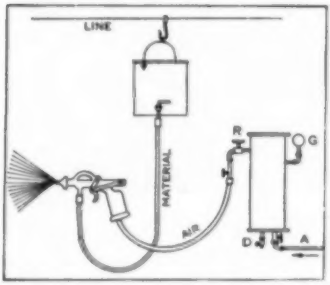
Our finishing department can be of assistance to you in any finishing room problem. Why not write us about it?

GRAND RAPIDS VARNISH CORPORATION

Main Office, Factory and Studio at
GRAND RAPIDS, MICH

Los Angeles Chicago Jamestown High Point

light," glass paneled building of sheet metal can be put up. However, a modest paint shop can also be run to great advantage in conjunction with a fair sized repair garage. Without the least touch of exaggeration, it may be said that one man can finish two small size cars or one large closed car in a day, at returns that will surprise the most conservative. At some later stage—in continuation of this article—actual time study, expense and profit figures will be given to prove the writer's assertions.



Several gravity feed buckets can be suspended from the overhead line, each bucket containing a different colored lacquer. *A* represents air line from compressor; *D*, oil and water drain; *G*, pressure gage; *R*, reducing valve.

The finishing room, if operated in conjunction with a service station, should be located at the rear or "alley side" of the establishment, and in close proximity to the "wash-rack". The room may be partitioned off from the rest of the garage by some make of wall board, though sheet metal partitions will be more in accordance with safety from fire.

If it is to be conducted exclusively as a paint shop, the room must have a slightly sloping cement floor, to permit easy cleaning, periodically. Approximately up to four feet from the floor, the enclosure should be of sheet metal construction, and glass paneled above that point.

Lighting

As far as possible, finishing rooms should be lighted with natural daylight. Artificial lighting should be restricted to electricity. Gas lighting, etc., is suicidal and should not be tolerated for even a fraction of a second.

The electric bulbs should be enclosed in shades provided with glass fronts. So shall Cooper Hewitt or other mercury lights, especially when used in close proximity to spray booths, since accidental breakage of either might result in a serious fire, through the spark accompanying such breakage.

Spray Booth

The highly inflammable nature of lacquers and their thinners warrant a very careful handling of the material. With a view to safeguard the health of operators using such material, finishing rooms should be equipped with spray booths which will facilitate the removal of toxic vapor of very low flash point (below 32-deg. F.), thus eliminating two of the greatest hazards—fire and toxicity.*

However, since a spray booth entails an expense rather out of proportion to the remaining equipment, one may very well obtain fairly good results by the installation of a suction fan.

Suction Fan

For a finishing room 20x20x10-ft., I would recommend an 8 to 10-in. blower and motor to be installed outside the finishing room, to the side farthest from the en-

*To be discussed in a subsequent article.

Lacquer has it's place Varnish has it's place

This is admittedly a "lacquer age" but lacquer, like everything else, has its place. To use it out of its place means false economy and lower profits.

There is still a place for *Varnish* and we have the *Varnish* for the place.

Hundreds of furniture manufacturers are using our varnishes on products embracing all the various pieces and suites necessary to furnish the home.

The fact that we are continually adding new customers to our list bears out our statement that there is still a place for varnish.

If you want a varnish that offers the most for the money (real economy) better try ours. We are varnish specialists—have been at the game since 1870.

At this time we are concentrating our efforts on two particular varnishes which we heartily recommend for all kinds of furniture—

Our CRYSTAL RUBBING produces either an excellent dull rubbed or polished finish at a low cost.

While our **DURABLE COACH** is unsurpassed for producing a high gloss.

Working sample on request. Both these varnishes will spray or brush.

Indianapolis Varnish Co.

131-147 NORTH PINE ST.

Indianapolis, Indiana.

trance and about six feet from the floor. The free end of the blower may be left open to the atmosphere, by an air duct adequately equipped with a hood. The outside location of the blower motor eliminates the fire hazard due to sparking motor brushes, short circuits, etc.

However, a novel and cheap method of induced suction can be obtained through the use of the Fordson tractor-motor fan and pulley, which may be purchased from any Ford dealer, and belt driven from the motor used in connection with the compressor. Such an exhaust-fan arrangement should be properly grounded for possible trouble with static electricity generated by belt friction.

Compressor

While numerous compressors have been placed on the market during the last year, it is recommended that only those compressors be considered which have an output of about 6-cu.ft. per second, which can be maintained for at least ten minutes with the air brush wide open. In other words, a compressor that can furnish air for ten minutes at a stretch, at 80-lbs. pressure with air brush open, will give satisfactory service. Compressors with which garages and service stations are generally equipped, and which are used for tire inflation, etc., are not at all desirable, since they cannot maintain the above pressure for more than a minute or so.

It is generally agreed that for fine work, 70 to 110-lbs. of air pressure is necessary to attain proper atomization of lacquers. In view of these facts, due precaution must be exercised in purchasing a compressor.

Where electricity is available, the compressor should be equipped with a suitable motor for the work. My recommendation is a D. C. motor rated ½-h. p., 1700 r.p.m., 120 volt current. However, a gasoline engine has been considered more economical by some. In any case, I believe that the additional cost of running a compressor with an electric motor, outweighs by far the disagreeable noise created by a gasoline engine.

The latest achievement of engineers is a unit type, beltless, portable compressor, which has recently been advertised in the pages of this magazine.

Air Brush and Cup

The air brush is a device for atomization of lacquers, paints, enamels, etc., so they may be spread on the surface more evenly than can be achieved by the most expert brushmen. However, the subject of air brushes is so vast that it is proposed to discuss this at length in another article. Suffice to say, that a prospective "Modest Repaint Shop" operator must get only the best, irrespective of cost.

It is hardly necessary to point out the best by name, since such an action is controversial. Suffice to say, that this writer recommends any of the four or five air brushes advertised in this magazine. However, this does not imply that the rest of them are "gyp" air brushes. In any case, one should thoroughly investigate the merits and demerits of an air brush, especially before buying any of those not advertised herein.

Transformer

More appropriately called an oil and water separator! The

One Pint Is A Lot

MARIETTA Varnitro

Varnitro Out-tests Ordinary Thin Lacquer

Largest concern of its kind in America finished twenty-five pieces of their product with Varnitro and found that—

They Saved Five Pints!

In other words, the "Old style thin Lacquer" that they had been using was decidedly less economical than the heavy bodied Varnitro.

This manufacturer produces 1,000 pieces of furniture per day. On this basis it would take 25 gallons less of Varnitro per day than it did a thin Lacquer. THINK THIS OVER.

Varnitro rubs easier than the "Old style thin Lacquer." It will brush or spray. It can be recoated the same day. Made in gloss or dull. It is also available in pigmented form.

For Economy — Speed — Beauty — Quality in finishing use—

VARNITRO

MARIETTA PAINT & COLOR CO.
MARIETTA, OHIO HIGH POINT, N. C.

Send for sample panels for testing VARNITRO against—

MURIATIC ACID
BOILING WATER
HOT DISHES
LIVE STEAM
HAMMERING
VINEGAR
PRINTING, ETC.

We would like a panel of VARNITRO to make tests.
What is the price in drum lots?

We manufacture.....

Name.....

Address.....

function of this apparatus is to strip the compressed air of its moisture and oil content before it reaches the air brush. Just as grass and automobiles cannot grow together, similarly, water and lacquer cannot be made to mix together and give a desirable finish.

In addition to the above equipment, the proprietor will have to purchase an air hose, a fluid hose, a quart or pint cup for connection to the air brush and, if it is desired to feed lacquer by gravity, a bucket with suitable attachments.

Some of the accessories essential for the modest repaint shop are: an oval brush, chamois skin, sponge, half-inch camel hair brush, a four-inch glazing knife, a putty knife, two sword striping brushes, a spatula and a few cups of one-pint and one-quart capacity.

Material Requirements

(a) Wet or dry sandpaper—all grades.
Adhesive tape.
Cheese cloth.
Canton flannel.
Respirator.
Rubber gloves.

(b) Paint remover, 1 gallon.
Naphtha, ½ gallon.
Denatured alcohol, ½ gallon.
Lacquer primer, 1 gallon.
Lacquer surfacer, 1 gallon.
Lacquer putty, 1 pint.
Black lacquer, 1 gallon.
Lacquers, 5 primary shades, 1 gallon each.
Lacquer thinner, 5 gallons.
Top dressing, 1 quart.
Black brushing, 1 pint.

With this equipment in the modest paint shop, and proper knowledge of the application of lacquers, the establishment will pay for itself in a very short time.

Working details for the "modest paint shop," together with a discussion of the layout of the "ideal repaint shop," will appear in May and June issues of this magazine.

Second-Coat Paints

Describing fundamental differences between primers and second-coat paints for both wood and metal surfaces; also notes on what these paints are composed of and how they should be used

By E. Perry

PAINTS for second-coat work are, as a rule, quite different from primers. The foundation or primer coat should be of the very best material because the durability and appearance of the finished work will depend mainly upon the undercoat.

With a good primer, an inferior second coat will give better results than a second coat over a poor primer. This is most forcibly illustrated in carriage painting, where a durable lead-coat primer is covered with a japan color which possesses practically no durability of its own but depends upon the finishing coat of varnish to preserve it.

In carriage and car painting it is absolutely necessary that the

"Eliminate a Fire Risk"

NEWCOMB

SYPHON VENTILATED CABINET

THE "NEWCOMB" GIVES YOU everything you could want in a spraying cabinet and much more than you had thought possible.

Let us tell you about our latest and best development; the fan with direct connected motor, independent of booth, with rear of booth fitted with reclaiming chamber and baffle-doors.

Grand Rapids Blow Pipe and Dust Arrester Company

Dust Collecting Systems 527 Monroe Ave. Grand Rapids, Michigan

It sells *your* goods—*and* creates a *reputation* for the goods *you* sell

ARTICLES that are finished with Egyptian Lacquer take on a depth of color—a mellow softness—a living glow—that tremendously increase their ready salability.

Put an Egyptian Lacquered article beside a similar article finished with ordinary lacquer. Study the difference. Note the way the Egyptian finish catches and holds the eye. See how unsuspected beauty is revealed in design or detail. No other lacquer so happily combines present beauty with lasting satisfaction!

A wide range of finishes await your choice—an amazing variety of colors that almost certainly includes the one you want. Or, if it does not, we will be glad to fill any special "prescription."

Our Service Department is maintained expressly for consultation on difficult finishing problems. For nearly half a century we have been co-operating with manufacturers in the Industrial Finishing field. We welcome an opportunity of serving you.

The maker who is proud of what he makes, uses Egyptian Lacquer

THIS SYMBOL is the Egyptian Lacquer trade mark. Its central figure is that of MAAT, *the Egyptian Goddess of Truth*. It typifies the integrity with which all Egyptian Lacquer products are made...their precision, balance, and true quality...the fidelity with which Egyptian Lacquers meet the particular needs of the manufacturer who seeks true beauty, fine finish and permanent protection for the products that he makes.

FOR OVER 40 YEARS

EGYPTIAN SUPERIOR LACQUERS

Beautiful 16-page booklet
FREE

There is unusual charm and interest in a new booklet we have prepared "ANCIENT AND MODERN EGYPTIAN LACQUERS." *We will gladly send you a copy. Please address the New York office.*

Egyptian Lacquer national advertising in 1927 is a steady, never-stopping force influencing thousands of people to accept and specify "Egyptian Lacquer."

THE EGYPTIAN LACQUER MFG. CO., INC., 90 West Street, New York

Completely equipped branches in charge of practical men *are maintained in the following cities:*

ATLANTA, BOSTON, CHICAGO, CLEVELAND, DALLAS, DETROIT, LOS ANGELES
PHILADELPHIA, PORTLAND, ORE., SALT LAKE CITY, SAN FRANCISCO, SEATTLE, ST. LOUIS

EGYPTIAN Lacquers

Invite us to show you

Sun Flat Lacquer

We will display our goods at our expense, and give you practical advice. How best to use.

White No. 1 Lacquer

COLORLESS

Clear and transparent, looks like a coat of celluloid on work. Can be polished.

FINISHING ROOM FAVORITES

No. 115 Pale Rubbing

The reliable quality varnish that held its own so many years in the face of keen competition.

SUN VARNISH CO.

Louisville, Ky.

undercoat be thoroughly dry and hard but at the same time it must have sufficient "tooth" to take the second coat.

Paint Pigments

Metallic zinc and aluminum are two metals devoid of "tooth", and unless the surface be oxidized, or roughened, paint will not adhere to it for any appreciable length of time. In a somewhat similar manner, primers containing an excess of zinc oxide will not possess sufficient "tooth" to hold the second coat and consequently, in time, the top coats scale off.

Primers containing zinc oxide up to 50 or 60 percent must, in order to hold the second coat, contain some inert material of a crystalline formation, such as whiting, barytes, silica, or asbestine—any of these, of course, in addition to a certain amount of lead.

Whiting increases the thickness of the paint film in both brushing and dipping paints.

Barytes has practically no influence on the thickness of the film, and aside from the increased weight produced, does not greatly change the character of the paint.

Silica possesses an extraordinary degree of "tooth", and is practically an indestructible pigment, but the paint manufacturers do not favor its use on account of its abrasive effect in cutting down the stones of paint mills, and also because it settles hard on the bottom of filled packages of paint. Its usage in primers is generally restricted to 10 percent of the total amount of pigment.

Asbestine, like silica, possesses great "tooth", but conversely to silica, it has the peculiar property of holding in suspension all other pigments with which it is mixed. It makes the paint fluffy, consequently with more than 5 percent of asbestine in a brush paint, the paint will show brush marks because such paint does not level out properly. On the other hand, dipping paints with 50 percent of asbestine cover well and flow out perfectly.

Brush Lacquers in Color

The vogue for painted furniture has increased to such an extent that it is hardly possible to find a home today which does not boast of at least one piece of furniture painted in the accepted colors of the day—and certain colors are popular in interior decoration, just as others are popular for clothes. To meet this demand, a brush lacquer is being put on the market in six supplementary colors, which have been selected by several of the leading authorities on home decoration as representing the most popular shades in use at the present time.

This line includes coral rose, French gray, Nile green, powder blue, Chinese yellow and mandarin red. While they are capable in themselves of producing attractive color schemes, still other effects can be obtained by intermixing one or more of these supplementary colors, or by using them with any of the 18 colors of the manufacturer's regular line. —News.

Lacquer can not be successfully applied over a surface that is not chemically clean.

Brushing lacquer can be sprayed but spraying lacquer can not be brushed successfully.

Blushing of a lacquered surface is generally caused by the presence of excessive moisture.

Industrial Finishing

PRACTICAL PUBLICATIONS, Inc.
Publishers
Room 603, 222 E. Ohio St.
Indianapolis, Ind.

Issued monthly. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

EDITORIAL

More Lustrous Finishes

Public favor is returning to the luster finish. Manufacturers have become aware of this tendency and are finishing their goods accordingly. It isn't an extreme high gloss that people want, but rather a rich sheen which immediately suggests a fine finish of depth, quality and smoothness — something midway between the old high gloss and the late dull finish; in other words a surface that will take a polish.

This finish calls for more careful workmanship in the white, followed by more attention to filling and to a smoothing up of the undercoats, because a luster finish certainly shows up and magnifies the slightest irregularity in any surface.

The experienced finishing foreman recognizes this fact and it is up to him to convince the management that articles delivered to his department must be properly made and conditioned to receive the luster finish. Otherwise, workmen in his department will be obliged to spend more time on the job, and as a result, finishing costs will mount proportionately higher. Either this will occur, or the finished surfaces will reveal defects and irregularities which will certainly prove to be objectionable.

Furniture Production

According to data collected at the biennal census of manufacturers, taken in 1926 by the Department of Commerce, the values of products reported for 1925 show that the leading ten states in the furniture industry produced 83 percent of the total furniture for the U. S., which was valued at more than 8⅝ million dollars.

The percentage of the total for the U. S., contributed by these states, were:

New York	17.9 percent
Illinois	12.6 percent
Michigan	11.4 percent
Indiana	9.3 percent
Wisconsin	6.2 percent
Pennsylvania	6.1 percent
No. Carolina	5.9 percent
Ohio	5.5 percent
California	4.2 percent
Massachusetts	3.9 percent

The establishments classified in the furniture industry, for census purposes, are those engaged primarily in the manufacture of all classes of furniture and of store and office fixtures, including show cases.

Fire Prevention Work

Industry and trade have a financial stake in fire prevention work. A corporation's insurance rate is determined only in part by its own care or negligence. The rate is made chiefly by the fire losses of others—by care or negligence of individuals and other corporations.

Insurance merely distributes

How the

Valentine Technical Staff *can*

SAVE YOU MONEY

VALENTINE & COMPANY maintain a corps of specialists in finishing whose one job it is to cooperate with manufacturers interested in solving finishing problems of any kind and for any material—wood, metal or composition.

For almost a century, the Valentine organization has been solving difficult finishing problems and as a result a fund of experience is available which makes it possible for the Valentine experts to solve new problems in cooperation with any manufacturer, more quickly than the latter could alone.

This experience and the services of the Valentine staff are at the disposal of any interested manufacturer.

VALENTINE & COMPANY, 456 Fourth Avenue, New York

NITRO-VALSPAR

The *Valentine* Lacquer Finish

these losses. The only way to reduce the rate, after the corporation has done what it can on its premises, is to help reduce fire losses in its community, in its industry and in the nation at large.

Fire prevention work, therefore, must be carried on as a nation-wide enterprise. This is what the National Fire Protective Association has been doing for 31 years. The knowledge it has accumulated needs to be more widely applied. It has, so to speak, a warehouse of knowledge; and this knowledge must "be sold" to a wider clientele.

The National Fire Protection Association will shortly launch a campaign to raise half a million dollars for fire prevention work. The annual loss by fire of 15,000 lives and $550,000,000 in property shows the need for such effort. In Europe the annual loss is only one tenth of ours.

The Association has had two field men engaged in the organization of local fire prevention committees and has demonstrated that reductions in fire losses result from such work. It now proposes to put ten men in the field. The money to be raised will finance this broadened effort.

Rubbing a Lacquer Finish

The true fullness of a lacquer finish is not brought out until after the article is rubbed. The lacquer finished surface may be rubbed in the same way as the usual varnish finished article; however, I believe the best and quickest results can be obtained by the use of water-proof sandpaper. This material can be substituted for the felt pads on the rubbing machine, with no danger of ruining the finish. The rubbing operation can be further hastened by using a fine steel wool before rubbing with pumice stone and oil, or pumice stone and water. It will be found that the use of water will bring the lacquered finish to a desired surface much more quickly than the oil-rubbing method.

One should be careful not to use too coarse a pumice stone, as it scratches the surface too deeply and some of the pumice stone is liable to remain in the scratches, causing the work to have a grayish appearance. The use of a finer pumice stone will help to eliminate this trouble. A light rubbing with rottenstone and water, or going over the surface with a waxed rag will also rid the finish of this grayishness.

Rubbing the lacquer before it is thoroughly dry will also produce deeper scratches and make it more difficult to clean off the surface properly. Sufficient time should be allowed the last coat of lacquer to thoroughly harden. Taking three coats as the usual procedure, the last coat should be given 24 to 48 hours to dry, depending on the time allowed between coats. The longer the interval between coats, the quicker the lacquer will be ready for rubbing.—J. H. S.

An Irishman's Mistake

Overheard recently in a finishing room.

Foreman finisher to finisher: "Say, Patrick, your job does not look anything like the sample in color."

Finisher to the foreman: "Sure, sir! My job is better looking color than the sample."

Moral: Match the sample and nothing else.

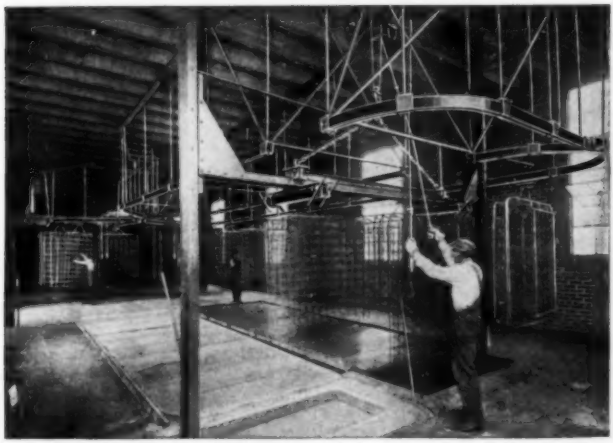
Dip Finishing and Baking Equipment

When dip finishing and baking operations are included in the manufacturing process of a standardized product, which is made in large quantities, the handling and transferring of parts in process can often be taken care of more satisfactorily and economically with overhead trolleys and hoists. An interesting installation of overhead carriers in the plant of Leggett & Platt Spring Bed & Mfg. Co. at Carthage, Mo., is described and illustrated in January issue of *Door-Ways*, the house magazine of Richards-Wilcox Mfg. Co., who supplied the equipment.

According to the article, "From the assembling tables, the long lines of beds proceed along the trolley line into huge baking ovens, for heat treating and tempering.

"The back doors of the ovens are then swung open and the springs are moved to a position above the dipping tanks. Each of these tanks contains 900 gallons of japan, one vat containing gray, and the other black japan. Into these tanks the beds are lowered automatically by threes, completely submerged, then raised again automatically and moved into ovens for baking. When the baking process is completed, the bed is moved, by overhead carrier, to the shipping room, where it is taken down for packing and shipping."

The accompanying picture shows, at the right, springs coming from the tempering oven to the 900-gallon dipping vats. Springs are automatically lowered either into the gray or black vat, by an electric hoister connected with the "Over-Way" conveying system on which the springs travel, and raised again to the tracks in the same way. They are then baked in either of the two ovens at the left.



A view in the japanning room.

Questions and Answers

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Gold Leafing Mirrors

A manufacturer of high grade mirrors that are gilded all over with pure gold leaf and only the high spots burnished, would like to know how to make a good adhesive to use under the burnished portions. Some use a pigment combined with glue-gelatine, gum Arabic, or something of that nature, and apply it hot. This method allows only a small space to be treated before the leaf must be applied. Others use a combination that has to be dampened with alcohol to impart sufficient "tack" to cause the gold leaf to adhere. Japan gold size, which answers for the unburnished portions, will not do where burnishing is necessary.—H. V.

In these days Japan gold size is most customarily used for gilding work or lettering of gold leaf, although "thumb workmen" feel it sets too fast and is not as satisfactory in every respect as it should be.

For burnished portions of gold leaf work there are several mixtures of gelatin, gum arabic, and materials of that kind, but all of these set very quickly and only small quantities of gold leaf can be laid before the size becomes too hard and loses its tack.

For a slower-setting gold size to be used on burnished parts, many workmen prefer to take the liquid linseed oil portion from under the skin that has formed on top of paint which has been standing exposed to the air for several months. This is what is commonly called fatty oil size and should be reduced slightly with turpentine, but not too much, or it will lose its tack too quickly.

A quicker method of obtaining practically the same type of fatty oil size is to pour a quantity of boiled linseed oil in a shallow dish or pan, cover it with a pane of glass and set it in the sun for two weeks or longer. The sun's rays are concentrated in passing through the glass and quickly transform the boiled oil into a quicker drying material, through slightly oxidizing the oil. This boiled oil size should also be reduced with turpentine to the proper consistency before using.

Either of these oil sizes are what is known as "24 hour sizes." That is, they should be applied to the work one day and the gold leaf laid the next day.—I. F.

Lacquer Thinner; Brushing

What chemical will dilute "banana oil"?

For brushing lacquer. what kind of brush gives best results? —M. P. A.

"Banana oil," as you no doubt know, is amylacetate, which is a solvent within itself and consequently requires nothing to dilute it. A popular error, however, is to assume that a very thin bodied, lacquer bronzing liquid is "banana oil." In other words, in the old days, these lacquer bronzing liquids were made by dis-

QUINCY P

Furnished with either gas or motor drive. Made in five sizes, in any style of mounting.

Demand a Quincy for your spray gun—

Just as modern paint spraying methods are miles ahead of the first "slow motion" machines, so are Quincy Compressors way in advance of the noisy, rattling, slow pressure compressor of early days.

But to assure the success of even a modern spray gun, you must have a Quincy to furnish the air. Clean, dry air at a steady, even pressure and a paint job to be proud of are the results if a Quincy is used. Many of the leading spray gun manufacturers have selected Quincy Compressors to complete their paint spray equipment. Demand a Quincy and there'll be a demand for your service.

Write today for complete information

QUINCY COMPRESSOR CO.

305 Maine St. **Quincy, Ill.**

K307

solving a small quantity of gun cotton in amylacetate and due to the odor, similar to bananas, the public in many instances called this solution "banana oil." If you refer to a bronzing liquid of this sort, any good grade of lacquer reducer will be satisfactory for diluting it.

The kind of brush to use with brushing lacquer is a good full-stock brush, set in glue or some other composition which is not softened by lacquer solvents. Some of the rubber-set and cement-set brushes are softened by lacquer solvents and allow the bristles to come out while being used. Practically all brush manufacturers now make brushes for use in lacquer that will not lose their bristles.—I. F.

A Filler That's Unsatisfactory

Why is it not possible to compound a filler similar to an automobile primer, using silex or other more suitable filler gum in a binder solution, and fill up checks and cracks the same as filling pores in the wood? Then this filler would clarify when coated with varnish and, of course, would be sanded smooth the same as filler before coating.—F.-T. Co.

There are several reasons why it is not possible to fill checks and cracks on an automobile finish with a silex filler compound similar to the paste wood-fillers used in filling the pores of the wood.

In the first place, the pores in wood are more or less stationary and when once filled with a hard drying material, they are not likely to change in shape or outline, unless subjected to extreme changes of temperature or moisture content of the wood.

On the other hand, applying such a filler compound in the checks and cracks on an old automobile finish, would not give the same results because these checks and cracks continue to grow larger with age, and even though they were filled up temporarily with the filler composition, after a few changes of temperature they would open up again and show through the finishing coats of new material.

Another reason why it is not possible to make such a material as suggested, and use it for filling up the old cracks before the finishing coat of varnish is applied, is that no matter how transparent this filler might be, it would not allow the same color to show in the cracks as on the portion not covered with the filler. This is apparent on wood finishes where even though the natural-colored paste wood-filler is used, the pores of the wood appear darker than the hard portion of the wood.

For low priced, rough jobs it is sometimes the practice to apply glazing putty or sanding surfacer in checks and cracks, either with a knife or by brushing or by spraying until they are all filled up; then the surface is sanded cut smooth and one or more color coats are applied, followed by a rubbing and polishing operation, in the cast of lacquer enamels, or by a finishing varnish coat in the cast of a paint finish.

This is only a temporary finish, however, and we have yet to see such a job which will not again show the same checks and cracks as were filled up with a filling compound, after the re-finished car has been in use anywhere from six weeks to six months.—I. F.

Paasche

Most Highly Perfected

The Paasche Multiplehead Airbrush. Light, well balanced, the lacquer is easily applied in the widest spray or finest line

THE efforts of Paasche engineers are devoted exclusively to the perfection of air finishing equipment. There are no other Paasche lines to claim their time and attention. The advantage of this undivided interest is forcibly shown in the present high perfection of Paasche Airbrush Equipment.

Only engineering ability of the highest type could have developed to its present stage the Paasche Airbrush, with its perfect atomization feature; the Paasche Spray Booth giving absolutely safe and efficient working conditions; the Paasche Superior Rubbing Machine minimizing hand labor; and the Paasche Air Conditioning Unit insuring clean dry air.

Paasche System long has led in keeping down the overhead. Each part functioning smoothly, efficiently in coordination with the whole. It is a masterpiece of engineering skill.

Paasche Airbrush Co.

1921 Diversey Parkway CHICAGO

FACTORY BRANCHES:

New York 54 Dey St. | Los Angeles 411 Douglas Bldg. | Detroit, Mich. 414 Hendrie Ave. | Denver, Colo. 1531 16th St. | Cleveland, O. 418 Perry Payne Bldg. | San Francisco, Calif. 417 Market St.

The Largest Exclusive Manufacturers of Air Finishing Equipment IF4–Gray

Spraying on Large Surfaces

In the Feb. issue of INDUSTRIAL FINISHING, page 8, an article appeared in which a "Superintendent of Finishing" with 15 years' experience claimed lacquer and finishing varnish could be sprayed on small objects successfully but not on a large surface, and there would be nothing gained in attempting it, and he speaks from a production point of view. While I agree with him on some points, such as not sacrificing durability for a cheap product, I certainly do not agree with him in regard to spraying lacquer and varnish on a large surface.

We are at the present time, and have been for more than five years, spraying finishing varnish on panels 50x96-in. without ripple or spray pitts. Production goes forward at the rate of from 40 to 50 panels per hour, with two men at work. This is in the largest commercial body factory in the world, and I might add that at the present time, we are spraying lacquer successfully on the same size panels.

We have been using spray equipment for nearly 15 years and, while we did not experiment to improve on spray equipment, we have experimented with paint materials and, through different manufacturers, we have helped to develop a two-coat proposition for metal that has proved successful. My prediction is that in a short time we will be spraying one coat of lacquer over clean smooth metal, and when we stripe, the job will be ready for shipment.

For spraying large objects or surfaces successfully, it is essential to have the right material, proper equipment and a real operator behind the spray gun.—G. W. C.

LACQUERS for Wood

Pioneers in wood lacquers that give a finish that lasts. Made to satisfy users for sixty-nine years. Write us your requirements.

Chas. Cooper & Co.

90 Worth St., New York

Works—Newark, N. J. Since 1857

Hand Stirring Old Fashioned —Use a Portable Mixer

In the February issue, page 66, I notice an article about "stirring" being inadequate, signed by J. H. M.

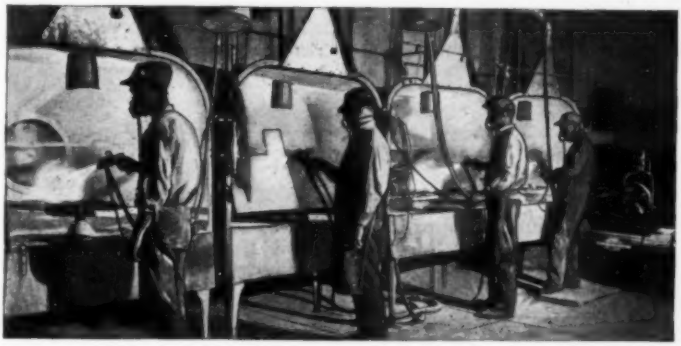
It is surprising how little advanced some of the present day painters, wood-finishers and all those are, who have to mix small amounts of materials, as they still use a stick of wood in mixing their materials similar to the crudest form, which has been used since the beginning of mankind.

Notwithstanding the fact that a device has been offered to them which would do the job more thoroughly and produce better results, besides saving approximately 90 per cent of time.

A very practical outfit consists of a handy, movable mixing machine called the "Mix-Ap." This machine has been thoroughly tested by the best of authorities, the largest manufacturing concerns including The National Lead Co., The Carter White Lead Co. and others, and found to be of exceptional merit and recommendable. The machine can be used for mixing all paint and finish materials.

A recent test disclosed the fact that 100-lbs. of white lead and four gallons of linseed oil could be thoroughly mixed within seven

CURTIS COMPRESSORS. HOISTS. CRANES. CAR WASH SYSTEMS. PORTABLE COMPRESSOR UNITS



The Compressor Must Be Right, Too

Reliability in the paint spray equipment means nothing without reliability in the compressor. Long before mechanical painting was thought of CURTIS was designing and building reliable compressors.

When a compressor was required exactly suited to spray painting, CURTIS perfected it. Even the difficult problem of lubricating the compressor adequately, yet without permitting excess oil to clog the filters and work its way over into the paint, was worked out by CURTIS engineers. This Company has in fact devoted the last 30 of its 73 years to pneumatic engineering.

The best made painting equipment and the CURTIS compressor are the only combination on which you can afford to take a chance.

MAIL COUPON TODAY

CURTIS Pneumatic Mchy. Co.
1977 Kienlen Ave., St. Louis, Mo.
5518-D Hudson Term., N. Y. City
Please send me information about Curtis Compressors.
Name.....
Address.....
.....P7

CURTIS COMPRESSORS

CURTIS PNEUMATIC MACHINERY COMPANY, ST. LOUIS, U.S.A.

minutes, including the time of cleaning the machine and pots.

Another test showed the astonishing result in mixing lamp black, without a previous breaking-up, with ready mixed white lead within three minutes into a perfect gray, without streaking or spotting. This would be an impossibility to do by hand.—Geo. Whigelt.

Ordering Finishing Materials

In the ordering of finishing materials, one must reckon with possible delays in shipment, the distance the material must cover in transit, the possibility of the firm from whom you buy being rushed with previous orders, and of delays sometimes caused by the elements which can not be avoided. It is therefore advisable to keep on hand, at all times, a surplus stock of all materials used to cover at least a 30-day period. This will save the trouble and expense of wiring in to rush the needed goods at once, or of having them shipped by express.

A great help in ordering finishing materials is to learn the usual time consumed by each in shipment, and how long it takes to use the material. Then order so as to always have a surplus on hand to take care of any emergency.

For most cases a drum of material in stock, one in use, and one in shipment—of each of the different materials used will save one the trouble of running short. Where a greater quantity is used this recommended amount can be added to according to what material is required.

In the ordering of wood filler, a careful tally should be made of how long it takes to use a certain amount of filler, and if it is found that a full drum lasts for quite a long while after being opened, it would be better to order in smaller quantities, say half drums or 100-lb. drums. The quicker the filler is used after being opened, the better the results obtained.—J. H. S.

There is much more to know about the proper application of lacquer, in order to obtain the desired results and finishes, than men schooled in the application of other finishing material realize.

Lacquer will not stick where there is wax, oil, grease or water on the surface.

Stephenson Joins Walker Co.

Mr. E. M. Stevenson, who is celebrating his Silver Anniversary in the lacquer field, has recently joined the Henry V. Walker Co., of New York.

"Stevie" has been selling and introducing lacquers in the New England territory for the past 22 years, and until recently was in that field as Division Manager for one of the older lacquer companies.

Mr. Stevenson has the advantage of being a practical and well trained finishing man, having spent a total of 39 years in the finishing field. "Stevie" was one of the pioneers who first introduced the use of lacquer on straw hats. His connection with the Henry V. Walker Co. became effective on April 1st.

LACQUERS for Autos

Extensively used, free from gum, uniform, reliable and economic. Pioneer lacquer makers who can satisfy your requirements. Write for prices.

Chas. Cooper & Co.

90 Worth St., New York

Works—Newark, N. J. Since 1857

Announcing the

SPRACO

"Touch-Up" Gun

Designed to meet the requirements of the trade for the high lighting, antiqueing and stippling of furniture, the coating of small articles such as toys, etc., decorating, stencilling and the "touch-up" of automobile bodies and other objects.

Built on the same engineering principles that have made the Spraco dependable gun the finishing tool of those seeking the best results in lacquer finishing.

Operated with a minimum of fatigue, as all unnecessary muscular hand strains are eliminated.

Produces a cone or flat spray at the wish of the operator without any change of head, but simply through the turning of a thumb nut.

Send for bulletin 110 and learn more of this tool which will increase your efficiency.

SPRACO PAINTING EQUIPMENT COMPANY

Executive Offices
60 HIGH STREET -- BOSTON, MASS.

Sales and Service Stations
New York - Atlanta - Detroit - Chicago

Melrock SPRAY BOOTHS

The Spray Booth That Makes Finishing Conditions Ideal

Endorsed by factory and insurance inspectors. Lowers insurance rates by reducing fire hazard to a minimum.

The design eliminates all dead air pockets and the spreading of harmful fumes and gases. No back drafts to fog operator or detract from uniformity of finish.

The baffle plates are so arranged as to produce a uniform pull across entire face of booth. Their exclusive design almost entirely prevents any material getting through to fan or motor. If necessary for cleaning each baffle plate is taken out individually, and without special tools. See illustration. They are put back just as quickly and easily.

Pneu-Gun ATOMIZATION

This is the gun that makes the ideal finish and does not waste material. Its one-coat job looks better than many two-coat jobs. In many instances the Pneu-Gun does away with rubbing and sanding.

The density of the Pneu-Gun stroke is uniform, being just as solid at the edge as at the center. No necessity for overlapping of strokes. Lightest, strongest gun made. Designed and balanced like a revolver. One-finger trigger material control varies width of stroke *instantly*.

America's Headquarters for Spray Finishing Equipment

MELLISH-HAYWARD CO.

Manufacturers 211 W. Austin Ave. — MEL-ROCK PRODUCTS — *Established 1894* Chicago, Illinois

Service Everywhere

Fill in coupon and mail today

Please send me catalog 101 for important detailed information.

Interested in Pneu-Gun Atomization ☐ Melrock Spray Booth ☐

Complete Compressed Air Finishing Equipment ☐

Nature of merchandise to be finished .....

Name .....

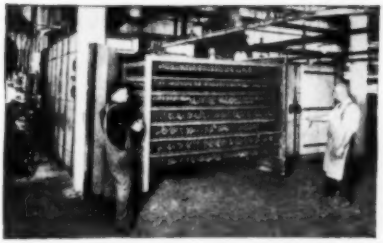
Address .....

This Section is devoted to the application, baking and polishing of finishes to be dried in ovens.

Baked Finishing

In the Japanning Department

MAEHLER Ovens



SOME idea of the magnitude of Maehler baking ovens in operation is gained from above picture showing release of load of small parts from an oven in one of the large industrial plants. Until opportunity affords for demonstration, few realize the time saving, money making elements of Maehler ovens. Correct in design and construction, Maehler ovens—gas, electric and oil heated—give efficient service in enameling, japanning and lacquering. Our descriptive literature is interesting and replete with ideas on baking equipment—sent on request.

The PAUL MAEHLER COMPANY
INDUSTRIAL OVEN BUILDERS
3230 W. LAKE ST. CHICAGO, ILLINOIS

GRINNELL

AUTOMATIC FOAM TANKS

for Volatile Liquid Fires

Approved by Underwriters' Laboratories and Associated Factory Mutual Laboratories

This new Grinnell Development combines two time-tested fire protection agencies into an inexpensive and simple device for controlling volatile liquid fires. The well known blanket effect of foam is now made automatic by the famous Grinnell Sprinkler Head. Syphonic action and gravity speed provides simple solution for one of the most serious fire hazards and problems in modern industry. Drawings of typical installations and full details are given in our free booklet. Write for it to Grinnell Company, Inc., 311 West Exchange Street, Providence, R. I.

No Piping Required **Absolutely Automatic**

GRINNELL COMPANY

Baked Enameling Suggestions

What features are particularly important and necessary to obtain satisfactory results in the use of baked enamels in colors —and japans

By Fred Mannhardt

ENAMEL for baking is a hard, glassy substance, usually applied to metal or porcelain and baked at a temperature which would destroy what is generally spoken of as "enamel."

The term "enamel" is often confused with a black finish, usually baked and known as japan. There is also another japan used as a drying medium and called coach painter's japan.

Enamel, as it is generally understood, is a finely ground pigment mixed with varnish, and it can be either air dried or baked; it is usually used on wood, metal and glass—in fact its uses will apply to anything where japan, paint, varnish or any other protective coating for a surface is desired. Its uses then, are obviously many. The methods of its application are also several, being mainly brushing, dipping, spraying and tumbling.

Cleanliness Important

The first rule to observe in enameling is cleanliness, not only at the starting of the job, but from then on to the end. This applies especially to the man doing the work. If he knows his business he will see that first the room in which he works, is kept clean. The co-operation of management will help here, in enforcing rules of cleanliness.

Undoubtedly some of the readers of this article have seen places which seem to invite you to come in and have a nice job of enameling done. Keep wooden floors regularly oiled, and concrete floors painted. Where baked work is done, brush out and oil the ovens regularly. Keep oven pipes clean; also window casings, etc., especially if spraying or dipping equipment is used.

The fan in a spray booth will draw a certain amount of dust onto the work while spraying; dust also collects on dipped work while dripping is in progress. The sooner the work is placed in the oven after it is coated, and the heat turned on, the better. Where possible, it is better to have a separate compartment for cleaning work.

Good light is necessary for good work. The expense of keeping windows clean is a small item, compared with the returns it will bring in the form of better work. See also to preventing, if possible, the vibration of machinery, etc., which will shake down dust and dirt. Use a good quality of material. Of course, some work does not call for a costly material—profits would be eaten up—but there are cases where an inferior finish is used on a high grade article, the same being detrimental to everyone, and everything concerned. It shows a penny-wise, pound-foolish plan.

Summed up, these things ultimately drift back to employer and employe. Where possible, the

management should hire the best man obtainable. There should be co-operation between management and workers. Used judicially, these suggestions should help solve many difficulties in the baked enameling department.

Compared to Japan

Some authorities claim that a black baking japan is more durable than enamels. However, this is not always the case. A good japan is more durable than a good enamel, but a poor japan is not. Baking the finish on a surface does not always mean that it will "hang" better. I have seen air-dry enamel out-live baked work. Right here is where cleanliness enters into consideration. Coat over a slimy or partly rusty surface, and see what happens; either peeling or checking takes place regardless of how hard the finish is baked.

All surfaces to be so finished therefore, must be first put into proper shape to receive enamel. In some cases, where enamel is to be applied over old work, sandpapering will suffice. Dust the surface thoroughly before applying enamel. In other cases where old enamel must be removed, it is well to put it in solution of potash or lye, or use some of the paint removers advertised in this magazine.

Never put aluminum in a potash solution; you won't have any aluminum left if you do. In baked enamel work, the darker shades will generally stand more heat, and some colors will take almost as much heat as black japan. It is well to varnish over certain enamel work. This is done to prevent the colors from fading. A good grade of baking varnish is recommended for this service.

Preparing Castings

In preparing castings for baked enameling, first clean off the scale; then putty the sand holes. Baking the putty before sanding is the better way, but in some cases an air-dry putty will do. Dust off and reputty if necessary. Apply priming coat, either by dipping, spraying or brushing. Sand the priming coat, dust thoroughly, and apply from one to three coats of flat color.

When the flat color is dry, either fine sand, moss, or curled hair will put it in condition for color varnishing, which is flat color, and rubbing varnish mixed. When dry, this can be rubbed with fine pumice stone, washed in water, dried with chamois, and then striped or otherwise decorated, then varnished with finishing varnish. If stripes are to be baked, it is best to use clear varnish over the color varnish. This is done to prevent color from striking through bronze, etc. The reds are usually the ones to do this.

When finishing the softer metals, such as aluminum, brass, copper, etc., it is better to scratch-brush or sand-blast before applying color. The color will then adhere more firmly. This, of course, applies to the better grade jobs, and is not absolutely necessary. Colors may be baked from 100 to 300-deg. F. After ovens are shut off it is better to leave the doors closed until the work cools.

Baking Ovens

Some concerns have trouble with white enameled work turning yellow or spotting. Several things may be responsible for this; it may be inferior goods,

A Close Up of
John Bright
the Veteran who
"Cleans-Up" Everything
JAPAN STRIPPING records are being broken continually by John with his INTERNATIONAL No. 2-B.
This product strips japan, paint and enamel in minutes instead of hours. It can be handled without danger. Cost—about three cents per gallon of solution.
If you are interested in quicker, cheaper and safer japan stripping write John Bright today.
to clean RIGHT ask JOHN BRIGHT
INTERNATIONAL CHEMICAL CO.
PHILADELPHIA ----- PENNA.

grease or dirt in the undercoat, or handling by workmen. Another cause not generally known, is the baking of white enamel work in an oven which is also used to bake black japan. The fumes in a black japanning oven act on white enamel, as do the fumes in a kiln used to stain wood.

Keep a separate oven for white enamel where possible. If you haven't facilities for so doing, see that the flues and take-aways are wide open, or leave the door open a little.

Much more can be written on the subject of baked enameling, and undoubtedly more will be printed from time to time. At any rate the fellows who have been looking for a chance to swap ideas, certainly have it in this excellent publication.

Japanning Room Fire Hazard

Consulting Engineer on finishes and finishing problems emphasizes the safety of modern japanning ovens, calls attention to some of the real causes of japanning room fires and tells how to avoid such dangers

By Wm. J. Miskella, M. E.

WHEN an insurance agent enters a plant and discovers a japanning oven, he usually begins to back out for fear that the place will either take fire or blow up. There was a time when it might have been more or less ethical—or, let me say, a wise thing for him to do this—provided he cared anything for his safety.

It was not so many years ago that I had that same experience—I entered the office of a japanning plant, felt a strange tremor in the air, and the next instant saw workmen rushing out past me. Later, it was discovered that one of the new employees had undertaken to light an old open-flame japanning oven. His lighter went out just as he was about to ignite the gas.

It took several minutes to find another match to light the lighter and, when the lighter was finally ready again, the unexpected happened! The new workman was suddenly thrown up against the side of the building under the oven door which had blown off and landed on him. Naturally he was surprised and wondered what had happened. He was learning by experience, just as some of the other older employees probably had learned.

Obviously, the oven became filled with gas between his two attempts to light it. As soon as the lighted torch was introduced into the gas-filled oven, something had to go—in this case the oven door.

This incident happened in the days when little progress had been made in the design, safety and construction of japanning

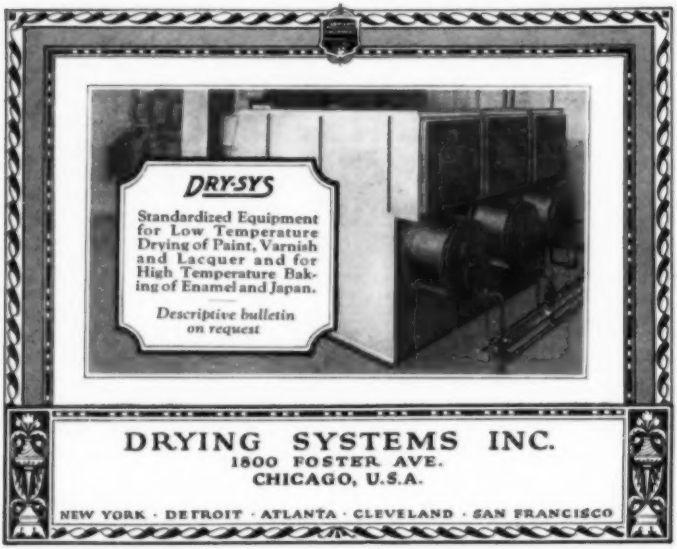
Armitage ARMORCOTE BAKING ENAMEL

PROTECTS metal against the elements. A durable baking enamel that combines vitrified hardness and elasticity, and it does not chip or check.

Leading automobile and metal products manufacturers use **Armorcote.**

Complete information sent on request

John L. Armitage & Co.
Est. 1876
NEWARK, N. J.
Varnishes — Lacquers — Japans


DRY-SYS
Standardized Equipment for Low Temperature Drying of Paint, Varnish and Lacquer and for High Temperature Baking of Enamel and Japan.
Descriptive bulletin on request

DRYING SYSTEMS INC.
1800 FOSTER AVE.
CHICAGO, U.S.A.
NEW YORK · DETROIT · ATLANTA · CLEVELAND · SAN FRANCISCO

KESS

FINISHES

ENAMELS LACQUERS
VARNISHES

Are made in a Modern Plant Devoted to making Industrial Finishes only.

THE KAY-ESS CO.
DAYTON, OHIO

ovens—in the days when it was the custom to build a large box-type oven and not worry about anything except the insulation of the walls to keep fuel expenses down. It was even customary to place some sort of a lock on the oven door so that it would not be possible to open it easily—not even by a little pressure from within.

These customs gave the japanning shop and the japanning department a black eye that has lasted for years. Insurance rates were boosted in the early days and they have never come down. This is unjust to those who use japanning ovens of a modern type. The fire and explosion hazard that existed 15 years ago, does not exist today.

Modern Ovens Safe

Gas burners are no longer placed in the same compartment as the parts that are being finished. Relief doors are a part of all ovens that are made today. In other words, the two things that caused all the clouds to fall on the insurance risks, have been eliminated. Indeed, at the present time there are very few fires that may be strictly charged to japanning proper. There are fires caused by open gas flames, smoking, burning matches and so on, that are not chargeable to japanning. However, japanning usually gets the blame whenever there is a fire in a japanning plant.

The Actuarial Bureau of the National Board of Fire Underwriters, after a year's work, has succeeded in compiling fire-loss data covering the year 1925, and some of the facts that they show will be interesting to readers of INDUSTRIAL FINISHING who are

Lucas

Clear Lacquer
for Cabinet Work

LUCOTE No. 102 (Gloss)

The highest type of wood finishing lacquer made.

Levels splendidly, requiring little sanding. Excellent depth and fullness. The top-notcher in lacquer.

LUCAS
Flat Lacquers

LUCOTE No. 400—Flat Lacquer
LUCOTE No. 401—Velvet Lacquer
LUCOTE No. 402—Semi-Gloss Lacquer.

produce three beautiful effects for finishing coats when work is not rubbed.

Get in touch with our Dept. W-4 for complete information on these splendid finishes.

John Lucas & Co., Inc.
Paint and Varnish Makers Since 1845
PHILADELPHIA
New York Pittsburg Chicago Boston
Oakland
And Local Distributing Points

Larkin
Paints, Varnishes, Enamels, Lacquers.

THERMOPRUF ENAMELS

in light colors

No appreciable discoloration at continuous high temperatures.

Suitable for
Boilers
Radiators
Stoves
Water Heaters

Write for descriptive literature

Larkin Co. Inc.
Paint Division
BUFFALO PEORIA
PHILADELPHIA

interested in the fire hazard of japanning.

Real Causes of Fire

The total fire loss in the U. S., for the year 1925, is placed at a little less than $560,000,000.00—the highest fire loss ever sustained in any country or during any period of the world's history. This was an increase of nearly 2 percent over the loss of 1924. The rough totals of the various causes are as follows:

Unknown causes	$199,000,000.00
Exposure (including conflagration)	61,000,000.00
Matches—Smoking	30,300,000.00
Defective chimneys and flues	21,700,000.00
Stoves, furnaces, boilers and their pipes	20,000,000.00
Spontaneous combustion	17,000,000.00
Electricity	15,000,000.00
Sparks on roofs	14,000,000.00
Petroleum and its products	12,700,000.00
Sparks from combustion	7,800,000.00
Sparks from machinery	7,500,000.00
Hot ashes, coals and open fires	6,000,000.00
Miscellaneous known causes	4,000,000.00
Gas, natural and artificial	3,000,000.00
Open lights	3,000,000.00
Explosions	2,800,000.00
Incendiarism	2,000,000.00
Ignition of hot wax, grease, tar, asphalt, etc.	1,750,000.00
Rubbish and litter	1,500,000.00
Steam and hot water pipes	300,000.00

To these figures has been added 25 per cent to account for the losses not reported, to make the total figure mentioned of $560,000,000.00.

It will be noted that japanning fire losses could very easily appear under several of the above classifications. It is not likely that they would get into the large unknown figure at the top, in which is more than one-third of all the losses in the country.

Obviously, with defective flues, stoves, furnaces and spontaneous combustion amounting to enough

to place these items at the top of this tabulation, it is natural that the prevention of these causes should be watched in particular by those who are handling and operating japanning equipment and materials.

Insurance Coverage

One may be covered by insurance and think that he will not suffer a loss in case of a fire in his plant, but no hypothesis was ever more false, for after all it is not the paid losses that count in the event of a fire, rather, it is the inability to turn out the regular daily output.

When the figures are all compiled at the end of the year in which a serious fire occurs, it is easy to prove that paid insurance losses compensate only for the real loss in a small way. This applies particularly to an operating plant where a large number of laborers are employed. It becomes less serious as the amount of labor used becomes less and finally, when the situation presents a condition where little or no labor is employed, then a satisfactorily paid loss is not so serious.

So, when the insurance agent comes into a modern japanning plant today and backs out, he is not well informed; he is acting only upon knowledge of events that happened in the distant past. The explosion incident, referred to at the beginning of this article, would likely not happen today because all manufacturers of equipment used in japanning plants are very careful to cover such points as these and see to it that their designs are up to date. A great deal more is known today about what happens inside a japanning oven than used to be known.

ZELLAC

Gets you More Business—and HOLDS it for You

When you are selling your products, talk up all their merits and qualities—and remember that one of the chief sales points is the finish! You can not place too much emphasis on the finish. Buyers scrutinize finish as much as any other feature—and many sales come down to this one question.

Manufacturers who have been using Zeller lacquers and lacquer enamels in spray, dip or brush grades, all swear by them. They have learned that Zellac gives so many labor and time saving advantages in application, such economical coverage, such long-lasting durability and service, such high grade and uniform technical characteristics, such unrivaled beauty of finish, that Zellac is a primary factor in selling their products and in *holding business* for them.

Let us know *your* finishing requirements, so that we can give you the cooperation of our lacquer chemists—the benefits of our two generations of lacquer-making experience.

To increase the salability of our customers' products, attractive Zellac Tags are furnished upon request.

ZELLER LACQUER MFG. CO.
Zeller Building
20 East 49th Street New York

Stockrooms and Offices at:

Chicago: 551 West Lake St. Los Angeles: 786 Ceres Ave. San Francisco: 67 Steuart St. Denver: Ormor Sales & Supply Co., 503 Fourteenth St., Distributors. Wichita: Ormor Sales & Supply Co., 438 N. Main St., Distrib'rs.

ZELLAC

ZELLAC

W-O
Combination
Stain

A Stain that combines several qualities other stains can't give you.

For instance, W-O Combination Stain won't fade, yet it won't raise the grain. And it won't bleed under lacquer.

You have seen lots of stains that combine one or two of these features, but for all three, you must use W-O Combination Stain.

JAMES B. DAY & CO.
1872 Clybourn Ave
CHICAGO
Manufacturers of
WOOD FINISHING MATERIALS

With Lacquer, Be Careful

A few words on lacquer: In nearly every japanning department, at some time or another, one sprays either a small or a large amount of lacquer. Lacquer is a very inflamable material and far more dangerous from a fire standpoint than is japan. Once it catches fire the results are likely to be very serious.

It is unwise to allow the waste materials resulting from japan and lacquer to be mixed. It will cause a fire and explosion hazard that is likely to create a very serious result at the wrong time. The explanation of how this develops is highly technical and involves an explanation and understanding of what spontaneous combustion is and how it is caused.

Spontaneous Combustion

Spontaneous combustion is caused by confining within the tight folds of rags and other materials that take fire easily materials made of drying oils such as linseed oil, for example. When the temperature within the confined mass reaches a certain temperature, fire breaks out. Assuming, therefore, that in a spray-booth there is first allowed to collect a waste layer of japan, and then a waste layer of lacquer. A condition is created that is exactly the same as exists in the case of the folded cloth, and (waste lacquer being not only inflamable, but highly explosive needs only the spark represented by the confined drying oil) confined say, between two layers of waste lacquer, and there you have present all the elements needed to start a big conflagration.

The answer is obvious—keep the japanning room clean at all

Apply Lacquers and Enamels with the BINKS Spray Gun

Base coats, varnishes, enamels, and lacquers are quickly and evenly applied. The BINKS Spray Gun is a good gun, it is fast and dependable. Takes large flat surfaces either vertically or horizontally. Works close to the surface, preventing evaporation of atomized material. Every ingredient in the material is applied intact and distributed uniformly—there are no weak spots to endanger comebacks or require time-consuming retouching or refinishing. Hand-rubbing is reduced to a minimum. Try this "master brush" in your plant, make your own test in your own way, then you will best appreciate what Binks will do for you. Further details will be mailed upon request.

Complete Finishing Equipment

Wherever fine furniture, pianos, motor cars, refrigerators and stoves require superlative finishes, you will find "Binks" the standard equipment. Copy the methods America's leading manufacturers have applied.

BINKS SPRAY EQUIPMENT CO.

Dept. D 3114 Carroll Ave. Chicago, Ill.

Offices in Principal Cities

ESTABLISHED 1898

WORTHINGTON

The paint man's idea of an ideal compressor

Nothing to worry about and nothing to get out of order—that is the paint man's idea of an ideal compressor.

In designing Worthington FEATHER (Reg. U. S. Pat. Off.) Valve Compressors every effort was made to realize these ideals. Among the features of Worthington Compressors are:

FEATHER Valves. These insure quiet operation, long valve life and freedom from adjustment.

Built Like an Automobile Engine. This means positive lubrication, smooth operation and freedom from vibration.

Sturdy Construction. This insures minimum upkeep and long life.

Worthington Vertical Feather Valve Compressors are made in air-cooled and water-cooled types.

Compressors	**Oil and Gas Engines**
Pumps	**Feedwater Heaters**
Condensers	**Oil and Water Meters**

WORTHINGTON PUMP & MACHINERY CORPORATION

115 BROADWAY, NEW YORK CITY

BRANCH OFFICES IN 24 CITIES

Kindly mention INDUSTRIAL FINISHING when writing advertisers

times, and make a practice of doing the cleaning regularly.

Spray Booth News

The Melrock spray booth, illustrated herewith, is designed to give the spray operator protection, reduce fire risk and to furnish satisfactory conditions for finishing. According to the manufacturer, the Mellish-Hayward Co. of Chicago, the arrangement of baffle plates in this booth is such that there is a uniform "pull" across the entire face of the

Taking out baffle plates. The baffle plates are quickly and easily taken out for cleaning. Each one is removed individually and no special tools are required.

booth. No spray-laden back drafts harm the worker, or damage the finished product which has been set aside to dry.

No "pockets" or "dead corners" are present to interfere with the carrying off of fumes, odors and gases by suction draft. All the fumes, odors and gases are drawn out through the exhaust, which has a capacity of 100 cubic feet a minute. Practically no floating material of any kind reaches the motor or fan blades, because it is caught by the baffle plates which are interposed between the spray

A LAUGH IS WORTH A HUNDRED GROANS IN ANY MARKET

~said *Charles Lamb*

THE Voice with a Smile Wins...Keep Smiling... Pack up your Troubles... surely this is the day of the peptomist and the optimist.

But who wants to laugh when blushing or something else ruins a job. And who can grin from ear to ear when a dealer returns a shipment he thinks is poorly finished. And when the consumer complains to the dealer and the dealer complains to you and you complain to the lacquer manufacturer... then what?

Then it's time to use ALAKA the practical lacquer, say we. And by way of getting acquainted send for Finishing Facts the new booklet by our service department. Or if you want samples just say so.

A laugh *is* worth a hundred groans in any market!

LACQUER & CHEMICAL CORPORATION

214-224 Fortieth Street

Brooklyn, N. Y.

Sunset 4864:5

CHICAGO BRANCH

213-217 E. Illinois St., Chicago, Ill.

Superior 5114

Put Another String In Your Bow!

Now is the time to fortify yourself with another reliable source of supply for your

Soluble Cotton

Write today for free samples and check them up before the lacquer season gets into full swing.

All Grades
All Viscosities

Nixon Nitration Works
Dept. F. Nixon, N. J.
"Nitrators since 1898"

When writing for samples please state quantities, grades and viscosities desired.

and the exhaust. These plates can be easily and quickly removed for cleaning.

The fan and motor at the back of the booth, can be raised or lowered according to the requirements of the finishing material being used, thus insuring ventilating efficiency at all times and under all conditions. The fan furnished with the booth has eight blades and is driven by a fully-enclosed self-cooled motor, which has the endorsement of fire-underwriters.

The booths are made in three sizes: the shelf type, 3-ft. wide, 3-ft. high and 3½-ft. deep; the floor type, medium size, 6x6x6-ft.; and the floor type, large size, 12-ft. wide, 7-ft. high and 9-ft. deep.

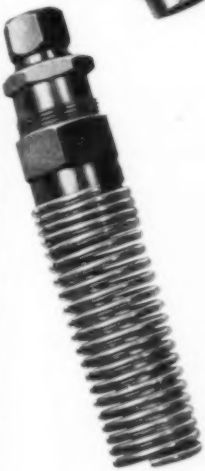
Qualifications of an Industrial Salesman

Industrial salesmen of today are looked upon by purchasing agents and finishing foremen in industrial plants, not only as salesmen selling finishing materials, but also as industrial finishing experts able to solve any finishing problem the foreman finisher may be confronted with. That being the case, the salesman must be an expert finisher himself, so he can draw upon his own actual experience in solving problems. In this way he gains his customers' confidence in himself and his goods.

No industrial salesman expert will try to sell material which will not do the work it is intended to do; his schooling in the finishing room has already trained him so.

Now at the present time there are certain salesmen trying to sell industrial finishing materials, and they know nothing

Spray Hose Couplings



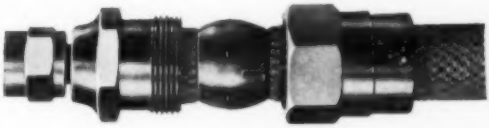
A COMPLETE SERVICE

Any size of hose and any size of connection for any make of spray equipment.

DETROIT RUBBER PRODUCTS INC.
2040 EAST GRAND BOULEVARD DETROIT, MICH.

Makers of the famous Sphinx Glass Run Channel.

Sales Agents for the Eastman Mfg. Co.



The EASTMAN Way

Simplicity and Efficiency Supreme!

Gast Spray Painting Equipment is without doubt the last word in mechanical spray appliances. It embodies many important features such as extreme simplicity, compactness, greater durability, and economical operation that have put it in a class by itself. It is, conservatively speaking, the MOST practical system in use.

The Low-Pressure principle under which Gast equipment operates (10 to 20 pounds, depending upon the kind of material used) is unquestionably the greatest achievement in the history of spray painting.

A FEW ADVANTAGES of the GAST "LOW-PRESSURE" PRINCIPLE:

1. Reduces fog or mist in the surrounding atmosphere.
2. Retains the more volatile ingredients and puts them on the surface where they belong.
3. Prevents refrigeration at point of nozzle.
4. Eliminates orange peel.
5. Enables operator to work closer to surface—no rebound from surface.
6. Provides greater comfort for the operator.
7. Makes spray painting sanitary.
8. Produces a BETTER finish.

Eight points that mean much to you—all incorporated in the Gast Policy of Service. An inquiry does not obligate.

Gast Manufacturing Corporation

Bridgman, Michigan

about practical finishing. It doesn't take a foreman long to find out whether a salesman knows his business or not. Some manufacturers of finishing material are placing men of this type on their industrial sales force, but in my opinion it is absolutely wrong. Most of the experience a man of this type gets is about two weeks in the manufacturer's plant, looking the place over and trying to test out material he knows nothing about.

A real industrial salesman must know his book from A to Z, and be able to demonstrate finishing material properly. He should have industrial men for his superiors in his own concern —men with whom he can take up finishing problems and from whom he can gain satisfactory recognition. Last but not least, a successful industrial salesman must have the support of a 100 per cent industrial house, making industrial finishes for industrial finishing service.—Joseph Cowan.

Note by the Editor: An experienced practical finisher, a good demonstrator and a real salesman represents a happy combination of ability that approaches the ideal, and fortunately there are a number of men on the road who have this combination of qualifications, but it's much easier to find a man who is one and not the other. While it is very desirable for all concerned that the industrial finishing salesman should be an experienced finisher, we know some men who, while they lack this experience, are filling their jobs creditably. Other qualifications compensate to a considerable extent for their lack of practical shop experience.

"IT" from Start to "Finish"

"IT" (GIBRALTAR LACQUER) has made such rapid strides in the market from the *START*—

That we can already point with pride to the list of prominent users who find the quality they are seeking in this most successful *FINISH*.

These principal GIBRALTAR features will appeal to you—

"IT" Gives a finish hard as a rock, one not affected by heat, cold or moisture.

Dries in 20 minutes.

A soft satin finish or a brilliant gloss—in every popular tint.

Automobile manufacturers and finishers, furniture manufacturers and dealers—write for further information. Free demonstration arranged on request. No obligation whatever.

GIBRALTAR LACQUER CO., Inc.
15 Forrest Street Brooklyn, N.Y.

Gentlemen:
I am interested to know more about GIBRALTAR LACQUER. Without obligation to me you may send samples and further information.

Name.....
Firm.....
Address.....

To GIBRALTAR LACQUER CO., Inc.
15 Forrest St., Brooklyn, N.Y.

C4

"IT"

Nu Polish

This Polish is highly endorsed by finishing rooms in large plants for the polishing of

Lacquer on Wood or Metal

also

Baked Varnishes

It is free from

ODOR
ACID
ALKALI

OUR GUARANTEE
Send for five gallons—Prepaid—
If not as we claim, return it.

Jamestown Wood Finishing Co.
Jamestown, N. Y.

Refinishing with Lacquer Over Varnish

It has been the practice of many finishers to remove all the finishing material from an article when cracks or checks appeared in or under the varnish, due to veneer hair lines and veneer checks, or other causes. This is always a very disagreeable thing to do, not only from the extra expense connected with it, and the incidental smearing but, knowing the good quality of material that was originally put on the article, it goes against a finisher's better judgment to remove the material.

Today it is altogether different. All he needs to do is to apply one or two coats of good lacquer. The first coat of lacquer must only be an even, moist coat—just moist enough to penetrate through the varnish, but not enough to lift the varnish like a varnish remover. If the hair lines and veneer checks still show, give the surface another coat of lacquer, after the first coat is dry; this second coat can be a heavy one. One coat of a good lacquer is all that is necessary in most cases. The article can then be rubbed and polished.

The above process if done properly and then rubbed, will give a finish which is equal to, if not better than what it was originally.

Nitro-cellulose lacquers are the only ones to use for satisfactory results. They are the kind of lacquers I have used. In regard to the lasting qualities of an article refinished with nitro-cellulose lacquer, I can only say that as far as the varnish checks are concerned, they did not show up

DOLAN'S
FINISHING MATERIALS

"444" Lacquer Shading Stains Embody the perfected elements for the delicate high lighting so much in vogue on finer furniture at the present time. Smoothness in spraying —do not run or bleed. Try them.

Characteristic of DOLAN "Unquestionable Quality" the "555" Lacquer Fillers are dependable—do not bleach or blush. Are rapid drying. Pores are permanently filled. They will meet your exacting requirements. **"555" Lacquer Fillers**

"Unquestionable Quality"

Stains — Fillers — Shellacs — Lacquers

V. J. DOLAN & CO.

1832 N. Laramie Ave. **Chicago, Ills.**

Our Superior Shellac Overcomes Many Difficulties

DOES not turn white, crack, check or peel, and works freely under the brush. Does not show laps nor raise grain of the wood; works well over any well-dried filler, can be readily sanded, and will not gum or clog sandpaper.

TRANSPARENT—BRILLIANT—MAXIMUM COVERING POWER

TEST IT FOR PROOF

Chas. Goldschmitt

Tel. Sup. 9188

23 W. Austin Ave. **Chicago, Ills.**

Established 1907

There is an old saying that looks are only skin deep.

That may apply to human beings but on metal goods the finish clinches the sale.

---Try---

No. 82 BLACK BAKING JAPAN

where an **elastic,** lustrous
jet black finish is desired.

No. 167 RUBBER FINISH JAPAN

where a semi-gloss or true
rubber effect is preferred.

Both are suitable for spraying or dipping and bake quickly, so that more oven loads per day are possible.

CHASE, ROBERTS & COMPANY
Established 1840
FIFTH STREET and WEST AVENUE
LONG ISLAND CITY, N. Y.

LUXOR

INDUSTRIAL FINISHES

UNDERCOATS for Enamel and Lacquer

Are unsurpassed for smoothness of finish.
Will stand any lacquer without "popping."
A generous trial sample sent on request.

The Sargent-Gerke Co

Producers of
Lacquers, Enamels and Undercoats
INDIANAPOLIS, IND.

after one year from the time of this treatment.

The closing up of veneer checks and joints with nitro-cellulose lacquer has only been a month experience with me, and up until the present time everything is satisfactory. This is my opinion about the above process: When the lacquer is applied to a varnished surface successfully, it makes a better surface than it ever was before. On the strength of this I am using a lacquer for this purpose that is made by a concern which has advertised in this magazine.—Albert Welsh.

Note by Editor: We have referred the above to a well known authority on lacquers, Mr. S. P. Wilson, who comments as follows:

"I do not doubt that the writer has successfully done what he claims, but I am doubtful as to the general applicability of the process. There are so many kinds of lacquer and so many kinds of varnish that a widespread application of this system would unquestionably lead to a deal of trouble. Many varnishes raise and wrinkle so badly under any lacquer that the cure would be worse than the disease.

"I understand that some people have used even thinner for the purpose, partially dissolving the cracked varnish and letting it flow together. Such a repair seems to me to be only a temporary cure, but may have its place."

Brushing Lacquers Should Be Slower Drying

From a purely practical standpoint, I feel inclined to state that as soon as brushing lacquers are so made that their drying time is extended to a reasonable work-

"AROLAC for EXCELLENCE"

AROLAC

It was our ambition for decades to have lacquers and lacquer enamels excel regular paints and varnishes not only in technical advantages and chemical supremacy, but also in dollars and cents. This is now realized in AROLAC Products. By this, we mean, first: the *covering capacity* of AROLAC; and second: the *price* which makes the use of AROLAC an obvious necessity.

ASK FOR OUR AROLAC

Wood lacquer, Silver and Aluminum lacquer, Bronze lacquer, Brush Brass lacquer and enamels in all colors, glossy and egg shell finishes.

ARIZONA LACQUER MFG. CO.
7-11 Sixteenth Street
BROOKLYN, N. Y.
Chicago, Ill., Office and Warehouse
701 So. Western Ave.
Philadelphia Office and Warehouse
8750 Eastwick Ave.

"PARAMET"
(ESTER)
LACQUER GUM

Increases adhesion. Makes for greater gloss. Insures maximum toughness in nitro-cellulose lacquers.

Manufactured by
Paramet Chemical Corp.
LONG ISLAND CITY, N. Y.

"The Proof of The Pudding"

Experience of one manufacturer with Pylakrome Dye Crystals.*

-Samples requested Oct. 2, 1926
-Tests Completed Nov. 27, 1926
-Trial Order Dec. 21, 1926
-Repeat Order Jan. 17, 1927
-Repeat Order Feb. 26, 1927
-Repeat Order Mar. 9, 1927
*Name on Request.

PYLAKROMES (Fast to Light) Penetrating Oil Stains for Benzol, Turps, Naphtha, Lacquers, etc.

Red, Yellow, Orange, Black, Mahogany, Walnut, Oak, Cherry.
Send for free samples.

PYLAM PRODUCTS COMPANY
Manufacturing Chemists
799 Greenwich Street NEW YORK

Satinite Colors

In liquid form, ready for the spray or brush, in over 40 popular shades, offer you the most satisfactory line for the production of colored furniture combinations so much in demand.

Beautiful, Fast, Durable and Safe with 15 years of real service to recommend them.

Write for information, or better still, let our service man show you what these materials will do.

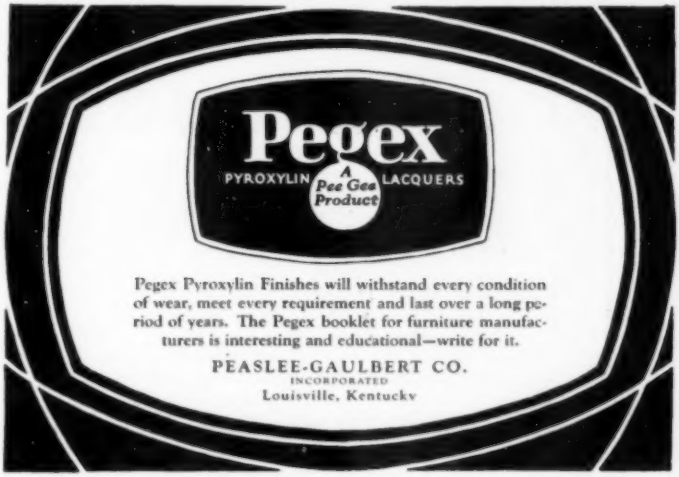
STICKNEY COLOR CO.
Manufacturers
Satin Finish Products, Coach Colors, Varnishes and Lacquers
INDIANAPOLIS, IND.

ing point, I believe they will become more popular with all classes of trade, and that the sales of these excellent materials will greatly increase. Outside of their use by practical finishers in commercial finishing, I will hazard the guess that brushing lacquers will never become extremely popular until they can be safely and easily brushed over old finishes, regardless of the kind of material used in the previous applications.

As proof of this, let us consider a typical example: Our neighbor, who is considered a handy man about the house, paints or attempts to paint his automobile with a brushing lacquer, purchased at the local paint store. He uses this fast-setting, fast-drying material on the field of his car and finally, with a fretted patience and disgust, condemns the lacquer, the dealer and the manufacturer. His remarks regarding this merchandise are not complimentary, to say the least.

On the other hand, a further objection to overcome is the fact that architects are slow in specifying the use of brushing lacquers on building trim, because of the lack of control in drying and the uncertainty of the brush work shown on large fields such as doors, wainscot, etc. The practical brush painter shys clear of it owing to its fast-setting characteristics and the laps.

Recently I was handed a sample of lacquer that came nearer to being an ideal brush lacquer than any I have ever used or seen used. It had a good flow, and did not lift up the varnish undercoating; it also had a quick set-up and dried quickly after it passed the flowing stage. But for medium class work, even this lacquer required expert brushing.



Pegex Pyroxylin Finishes will withstand every condition of wear, meet every requirement and last over a long period of years. The Pegex booklet for furniture manufacturers is interesting and educational—write for it.

PEASLEE-GAULBERT CO.
INCORPORATED
Louisville, Kentucky

INDUSTRIAL Overbrite FINISHES

We have specialized in the manufacture of Industrial Finishes for over a quarter century. Our laboratory has developed a line of industrial lacquers that have a reputation for their durability and attractiveness.

Our Silver Lacquer is considered the best obtainable for Industrial Products.

Many manufacturers who use our prepared gold and aluminum paints say they produce exceptional results.

FREE samples and prices sent on request.

COMPOUND SPECIALTY CO., Inc.
156 West Avenue, Long Island City, N. Y.

Kindly mention INDUSTRIAL FINISHING when writing advertisers

The Dependability of **Butanol**

"TO err is human"—but in the natural biological process by which Butanol is made from corn, the human element is eliminated in so far as the character and quality of the resulting product are concerned. No tricky or dangerous substances—no insidious film-destroying impurities — can be present even in the crude mixture from which Butanol is distilled.

This inherent advantage of Butanol is particularly important in the manufacture of lacquer, where mysterious failures, due to unproven solvents, may appear months after the lacquer has been applied.

COMMERCIAL SOLVENTS CORPORATION

Sales Offices:

17 East 42nd Street NEW YORK, N. Y.

Aldwych House Aldwych, W. C. 2 LONDON, ENG.

Terre Haute INDIANA

Plants: Terre Haute, Ind., and Peoria, Ill.

Everything for the Finishing Room

—From our complete new catalog we supply a nation-wide market—

Everything For The Painters Use

SEND FOR COPY

GEO. E. WATSON CO.

"The Paint People"

164 W. Lake St. CHICAGO

When this material is put on the market, for household purposes, will it find favor with people who have derived much satisfaction for themselves with oil varnishes and oil enamels.

I firmly believe that the brushing lacquer of the future should be so constructed as to spread readily without laps, in a full coat application, and when lacquer of this kind is made, the prejudice now existing will fast disappear and the merits of brushing lacquer will be accepted more generally.—Edw. C. H. Rottmann.

The Cause of Blooming

Everyone is familiar with blooming (the appearance of yellowish streaks) on a freshly shellaced or lacquered surface during humid weather and, although I have not experienced trouble from this source, I believe an explanation of this natural occurrence may be of help to someone.

When a liquid changes to a gas by evaporation, it requires a certain amount of heat which is taken from the surrounding air, thereby causing the temperature of the surrounding air to be lowered. When the evaporation is rapid, as with alcohol or the volatile liquids in lacquer, the air is cooled to such an extent that the water vapor, present in the air, condenses into water and is deposited upon the surface of the shellac or lacquer coat. This causes blooming. When evaporation continues until the water vapor in the air condenses into water, it is said that the dew point has been reached.

The condensed moisture on a coat of shellac is again absorbed by the air while the coat is dry-

French's Protective Coatings

Our Laboratory and Research Department have made special study of protective coatings for the use of Industrials.

We recommend several of the following products:

CHEMINERT
PROTECTOR RED
NON-CORROSIVE COATING
CHROMOX PRIMER
REINFORCED RED LEAD
and
BUCK WHITE LEAD

We will be pleased to give full information on any or all of the above mentioned products, and request that when you are in the market for this class of goods that you communicate with us.

SAMUEL H. FRENCH & CO.
Paint and Varnish Manufacturers
Philadelphia and Camden
Established 1844 Incorporated 1920

SAVE At Least 75c per Gallon
on Paint & Varnish REMOVER!

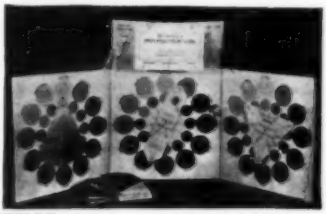
From over the country comes enthusiastic comments about the effectiveness of Campbell's new way to prepare Paint and Varnish Remover. And particularly, because Campbell permits you to have a good remover at much less than you are paying now.

FREE—TELLS HOW

A free book "Getting Away From the High Cost of Paint and Varnish Remover" will be sent to you free upon request. We suggest that you write for your copy now, today.

The M. L. Campbell Co.
1007 W. 8th St., Kansas City, Mo.

MISKELLA
Simplified Color Guide



TELLS HOW TO
Select warm and cool colors.
Mix colors to get any shade.
Use surplus paints and lacquers.
Harmonize three or more colors.
Size 21"x42" (open)—14"x14" (closed).
There are no loose parts.
Also includes one MISKELLA COLOR DECK of 77 colors.

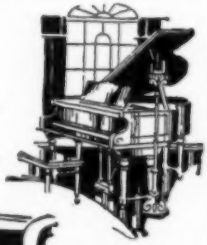
USEFUL ALSO IN
Trimming windows.
Selecting colors for signs.
Painting automobiles and trucks.
Teaching children color theory at home.
Choosing proper colors in advertising.
To get harmony in interior decoration.

Price $7.50 Postpaid

William J. Miskella, M. E.
1168 West Twenty-Second St. CHICAGO

PE-CO-LAC

is the ideal lacquer finish for all high grade furniture.



A modern finish—backed by 65 years experience—

PE-CO-LAC is new but it is not an experiment—we guarantee and stand back of it to the limit. Try it—free sample on request.

PECORA PAINT CO.
3rd St. & Sedgley Ave.
Philadelphia, Pa.

ing, causing the bloom to disappear gradually. The only thing I have noticed is that the drying of the shellac is retarded. Those who favor wood alcohol as a shellac solvent, can reduce blooming to a certain extent by using denatured alcohol during humid weather.

Denatured alcohol does not evaporate as rapidly as wood alcohol, therefore it does not absorb as much heat from the air. Although the bloom does not entirely disappear from a lacquer coat when the surface is dry, it can be removed when the piece is rubbed. The remaining streaks are part of the cotton solution, which has been thrown out of solution by the moisture, and usually they appear on the surface in the form of yellowish dust. If the remaining streaks can not be removed after the coat is dry, it is best to call in the lacquer salesman and ask him to add something to the lacquer to make it dry more slowly—in other words, to retard the evaporation of the volatile solvents.

Every finisher should buy or construct a hygrometer, which is a device for measuring the relative humidity in a room. It can be made by mounting two thermometers side by side, with a small water container properly placed to keep the bulb of one thermometer wet. The relative humidity is noted by comparing the difference between the two thermometer readings, which should never be more than ten, nor less than seven degrees.

The use of a hygrometer becomes a necessity if any attempt is going to be made to control the humidity in the finishing room. It is the only means by which the results of humidity control can

For a Better Finish Use GRIFFITHS

AMERICAN GROUND ITALIAN PUMICE STONE

A 99% pure product, uniform in grain and hardness. Goes further because each individual particle cuts uniformly, besides producing quicker and better work for the same reason. Our service is also an important factor, since direct importation and our own large and modernly equipped factory enable us to meet your requirements immediately. Try us.

K. F. GRIFFITHS & COMPANY, Inc.
110 East 42nd St., New York, N. Y.

GRIFFITHS GUARANTEED PRODUCTS

Powdered Rotten Stone
Cut Felt
Rubbing Felt
Polishing Felt
Carbon-Tetra-Chloride
Oxalic Acid
Rouge
Soap Bark

ASK ABOUT THEM

Did you ever stop to Think

PLC

That our trained staff of experts, who have successfully demonstrated the quality of our product in hundreds of plants, would be of assistance to you in solving your lacquer problems?

PITTSBURGH LACQUER AND CHEMICAL CO.
FARMERS BANK BLDG. - - - PITTSBURGH, PA.

LACQUERS
ENAMELS

Henry V. Walker Co.

17 John St., New York City

Works:
Jersey City, N. J.
Belleville, N. J.

Edward M. Stephenson
New England Representative

Telephone Cortland 0895

KROEGER BROS.

MANUFACTURERS
SINCE 1887

WOOD FILLERS
STAIN POWDERS
STAINS

LET US MATCH MATERIALS YOU ARE NOW USING AND SUBMIT SAMPLES WITHOUT OBLIGATION OR COST.

882 McKIM ST., BALTIMORE, MD.

be observed intelligently. Since a certain percentage of relative humidity is necessary to health, it is well to use a hygrometer to avoid making the air so dry that it becomes oppressive and uncomfortable for employees in the finishing room.—Geo. Ladermann.

Why Lacquer Failed

Lacquer salesmen have a habit of recommending lacquer for practically all purposes, which is absolutely wrong. Everything has a place. Brushing lacquer was recently recommended for exterior work—for example, road signs. This particular type of lacquer was not "built" for the purpose; as a result, the finish gave way in a very short time. The product and conditions must be studied first, before recommending.—Joseph Cowan.

Many of the articles today in the hands of collectors are finished with lacquers that have withstood the varying changes of temperature in all sorts of climes. It was not, however, until several years ago that lacquer finishes as a commercial proposition were taken up in this country.

FOR SALE
THE FOLLOWING DEVILBISS EQUIPMENT:

Three 7-gal. type Q. M. pressure tanks, complete with heads.
One 13-gal. type Q. M. pressure tanks, complete with heads.
One spray gun, type K.
One spray gun, type A.
Four Type D. J. exhaust fan motors, 220-volt, 60-cycle, 3-phase.
Three Type D. J. exhaust fan motors, 110-volt, 60-cycle, 1-phase.
Above complete with mounting rings and brackets.
Fourteen 16-in. diameter fans for above.
Address: P. O. BOX 486, Elkhart, Indiana.

$74 "EUREKA" $74
CURTIS AIR COMPRESSOR

Size 2½" x 2½", 10" x 30" Air Tank, Gauge, Safety Valve, Drain, ½ H. P. Motor, Belt, Electric Cord and Plug. Exactly as shown. Twice the capacity of other makes.

Write for Literature

Eureka Pneumatic Spray Co.
8728 130th Street
Richmond Hill, L. I., New York

We also make a complete line of Air Compressors, Spray Guns, Booths, Exhaust Fans and Equipment.

Free 60-page Reference Book

Mailing List Catalog No. 55

GET BUSINESS BY MAIL

60 pages of vital business facts and figures. Who, where and how many your prospects are.
8,000 lines of business covered. Compiled by the Largest Directory Publishers in the world, thru information obtained by actual door-to-door canvass. Write for your FREE copy.

R. L. POLK & CO., Detroit, Mich.
POLK DIRECTORY BLDG

SUPERIOR WOOD STAIN POWDERS

For Lacquer and all finishes.

Complete variety of shades. Samples and information on request.

W. D. LOCKWOOD & CO.
314 W. 14th St., New York

RAUX
ESTER GUM
RESINS

Improves Gloss, Flexibility, Adhesion and Toughness in any lacquer.

Prices and samples on request.

ROBERT RAUH, Inc.
480-8 Frelinghuysen Ave. Newark, N. J.

No. 82 WATER WHITE LACQUER

For GOLD
For SILVER
For BRASS

A finish to depend upon. An economic lacquer made by pioneer lacquer makers. Send us your requirements

Chas. Cooper & Co.
90 Worth St., New York
Works—Newark, N. J. Since 1857

LAC SHINERS

The Ideal Cloth for Lacquer Polishing

A clean unsized knitted cotton tubing—new material, not remnants. Rolls approximately twenty-five pounds, 50c per pound. Bales, twelve rolls, approximately 300 pounds, 48c per pound, F. O. B. Providence.

Prices subject to present stock and contracts.

STARKWEATHER & WILLIAMS, INC.
47 Exchange Place, Providence, R. I.

CLASSIFIED

Advertisements under this heading 45 cents a line, minimum charge $1.35. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

SHELLAC REPRESENTATIVES

Men wanted who have established following in shellac trade. Excellent opportunity to make good connection with reputable house. Address IF-134, care INDUSTRIAL FINISHING.

LACQUER SALESMEN

One to cover New Jersey and Pennsylvania and another Chicago and vicinity, for prominent New York manufacturer. Good proposition for those with following. Address IF-154, Care INDUSTRIAL FINISHING.

FOREMAN FINISHER

Young, aggressive finisher. Good production man. Varied experience in lacquer, colored enamels and white enamels, spraying, dipping, etc. Would like to connect with some live outfit. References. Address IF-155, care INDUSTRIAL FINISHING.

LACQUER SALESMAN

Experienced, to sell a complete line of spraying lacquer finishes to every type of industrial consumer. A real opportunity for a man of proven ability. Reply with full particulars. Address IF-156, care INDUSTRIAL FINISHING.

WANTED—SALESMEN

With lacquer experience to take charge of Philadelphia and Baltimore districts for company manufacturing lacquers exclusively. Only men knowing these territories are wanted. Address IF-157, care INDUSTRIAL FINISHING.

Water Soluble

PAINLESS ARTISTIC DAKALITE ECONOMICAL CONVENIENT

Wood Stains

DAKALITE USED WITH LACQUER

Is sure to give complete satisfaction.
Ask about our special introductory offer.

Dakalite Products Co., Inc. **Minot, North Dakota**

Advertisers in this Issue

Arco Company, The....Third Cover
Arizona Lacquer Mfg. Co.....89
Armitage & Co., John L.....73
Ault & Wiborg Co. .....Back Cover

Berry Bros. 29
Binks Spray Equipment Co.....79
Boston Varnish Co.....37

Campbell Co., M. L.....93
Chase, Roberts & Co.....88
Commercial Solvents Corp.....92
Compound Specialty Co.....91
Cooper & Co., Chas.....62-64-98
Curtis Pneumatic Mchy. Co.....63

Dakalite Products Co., Inc.....98
Day & Co., James B.....78
Denny, Hilborn & Rosenbach..... 4
Detroit Rubber Products Co.....83
DeVilbiss Mfg. Co..... 6
Dolan & Co., V. J.....87
Drying Systems, Inc.....74
DuPont de Nemours & Co., E. I..19

Egyptian Lacquer Mfg. Co.....50-51
Eureka Pneumatic Spray Co.....97

French & Co., Samuel H.....93

Gast Mfg. Co. 84
Gibraltar Lacquer Co.....85
Grinnell Co., Inc.....68
Glidden Co., The.....32
Goldschmitt, Chas. 87
Grand Rapids Blow Pipe and Dust Arrester Co. 49
Grand Rapids Varnish Corp.....43
Griffiths & Co., K. F.....95

Hilo Varnish Corp..... 2
Hobart Bros. Co.....100

Indianapolis Varnish Co.....45
International Chemical Co.....71

Jamestown Wood Finishing Co..86
Jones-Dabney Co. 34

Kay & Ess Co.....74
Kroeger Bros. 96

Lacquer & Chemical Corp.....81
Larkin Co. 76
Lilly Varnish Co. .....Front Cover
Lindeman Wood Finish Co. 1
Lockwood & Co.....98
Lucas & Co., John.....75

Maehler Co., The Paul.....67
Marietta Paint & Color Co.....47
Mayer & Loewenstein 13
Mellish-Hayward Co. 66
Miskella, William J.....94
Murphy Varnish Co. 23

Nixon Nitration Works 82

O'Neil Duro Co. 27

Paasche Airbrush Co.....61
Peaslee-Gaulbert Co. 91
Paramet Chemical Corp. 89
Pecora Paint Co. 15-94
Pittsburgh Lacquer & Chemical Co. 95
Polk & Co., R. L.....97
Pratt & Lambert-Inc. 17
Pylam Products Co. 90

Quincy Compressor Co.....59

Rauh, Inc., Robert.....98
Rockford Varnish Co.....25

Sargent-Gerke Co. 88
Sharples Solvents Corp.....31
Sherwin-Williams Co. 38-39
Spruance Co., The Gilbert.....21
Spraco Painting Equipment Co..65
Standard Shellac Co.....99
Starkweather & Williams, Inc...98
Stickney Color Co.....90
Sun Varnish Co.....52

Valentine & Co.....55

Walker Co., Henry V.....96
Watson Co., Geo. E.....92
Waukegan Chemical Co.....40
Worthington Pump & Machinery Corp. 80

Zapon Co., The.....Second Cover
Zeller Lacquer Mfg. Co.....77

THE STANDARD SHELLAC COMPANY

Importers and Manufacturers

STAINS, SHELLACS, LACQUERS,
and SPECIALTIES

2239 N. Knox Avenue --- Chicago, Illinois

HOBART BROS.
Box F47, Troy, Ohio

Without obligating me in any way, send me full information on the new HB Portable Paint Spray Outfit, including details of the HB 30 Day's Trial Plan—and the New Low Price and Easy Monthly Terms

TEAR OFF—MAIL WITH NAME OR LETTERHEAD

GET THE PRICE

ON THIS NEW BELTLESS BALL BEARING—

PORTABLE PAINT SPRAY

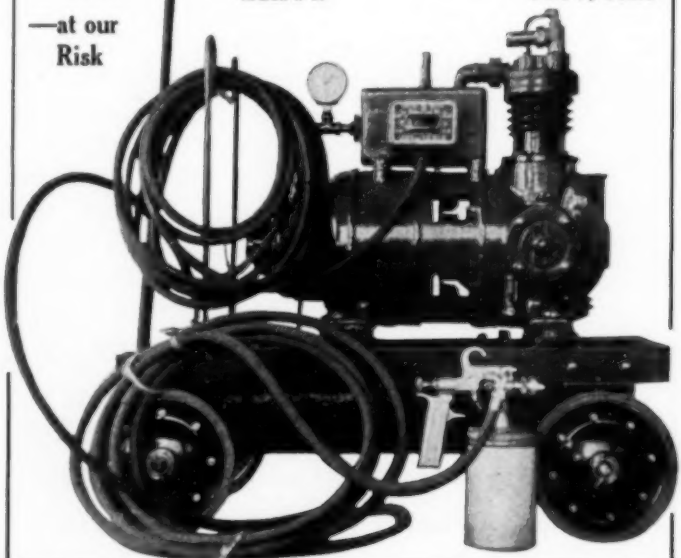
Delivers clean, dry, oil-free air in ample capacity to keep one gun busy all the time. Costs less to operate, more dependable and lower priced. Get full information, including 30 days trial plan—and NEW LOW PRICE, before you buy your next Paint Spray Outfit.

MAIL THE COUPON ABOVE

HOBART HB BROTHERS
Successful manufacturers ~since 1893~

BOX F47 **TROY, OHIO**

30 Days Trial —at our Risk



Kindly mention INDUSTRIAL FINISHING when writing advertisers

Are You Searching For a Lacquer That *Won't* SCALE *or* ? FLAKE !

Yes . . . you *can* chip Arcozon . . . *with a chisel.* A mere dent won't do it. Not when Arcozon lacquer is applied according to the Arco pyroxylin lacquer system.

The secret is in the long under-coat that knits to metal or wood and forms a perfect base. Then, when Arcozon is applied . . . it knits, in turn, to the under-coat. So tenaciously does one adhere to the other, every possibility of scaling or flaking is entirely eliminated.

A demonstration of Arcozon's many superiorities will prove how easily you can speed up production . . . and yet improve the quality of your products. When may a man from our technical department call?

THE ARCO COMPANY CLEVELAND, OHIO

Paints Varnishes Enamels Lacquers

THE ARCO PYROXYLIN LACQUER SYSTEM

SPRAYS ON ARCOZON STAYS ON

(73)

The NEW *Lacquer Finish*

"Capable of wonderful possibilities in the decorative line"

Such is the verdict of the Paasche Airbrush Company after testing Veiling Lacquer—a new Wiborite product.

Its unique, webby effect, (shown here) is more certain than crystalline, crackle and other novelty finishes. It is more distinctive. It costs less to apply. It is made in all colors. Its range of application is unlimited.

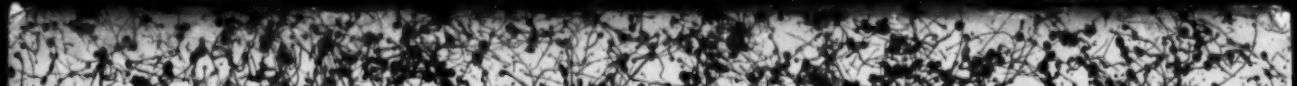
Write for details and samples of Veiling Lacquer, (Patent Pending).

The Ault & Wiborg Co.

Varnish Works

CINCINNATI, OHIO

Established 1876

Wiborite

VEILING LACQUER